CYCLONE MEMOIRS,

No. V.

ACCOUNT OF THREE CYCLONES

IN THE

BAY OF BENGAL AND ARABIAN SEA

DURING THE

MONTH OF NOVEMBER 1891,

VIZ., THE PORT BLAIR CYCLONE OF 1st TO 7th, THE MINICOY CYCLONE OF 1st TO 3rd AND THE CYCLONE OF 19th TO 23rd.

BY

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METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA

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CHAPTER I.

Introduction.

The present part of the Bay of Bengal and Arabian Sea Cyclone Memoirs gives an account of three cyclonic storms which visited the Indian area in November 1891. The meteorology for some time previous to their occurrence was characterized by very marked abnormal features, which modified and controlled to a large extent the character and paths of the storms. The three storms were hence marked by several peculiar features, whilst one of them (the first storm) was of very great intensity. It hence appears to be desirable to give a full account of this group of storms.

The first storm in order of time of formation is that which is described in Chapter IV, and is, for the sake of convenience, called the Port Blair cyclone. It originated in the Gulf of Siam, probably

Brief statement of the first storm

on the 29th and 30th October, under conditions which are at present, in the absence of information, unknown. It advanced in a west-north-west direction across the Gulf of Siam. The centre struck the east coast of the Malayan Peninsula at the port of Chaiya (in Lower Siam), which was almost completely wrecked by the storm with great loss of life. The storm passed across the comparatively low ground to the south of the Isthmus of Krah and the Andaman Sea at an average rate of nearly 19 miles per hour on the 1st November.

The centre passed over Port Blair on the early morning of the 2nd. The hurricane winds caused great destruction of life and property in a belt of country about 50 miles wide in the South Andaman Island. The S.S. *Enterprise*, which was lying in Port Blair Harbour, went down during the storm, the whole of the crew being lost with the exception of six lascars. The storm advanced in the same west-north-west direction in the Bay on the 2nd and began to recurve on the 3rd. It was advancing northwards on the 4th off the coast of the Circars, and on the 5th continued to recurve to east. The centre was about 50 miles east of Gopalpur at about 4 A.M. of the 5th, and 10 or 12 miles east of Puri about 8-30 A.M. The centre passed over the False Point Lighthouse between 4-15 P.M. and 4-45 P.M., and was then marching in a north-east direction. It thence advanced in a north-east or east-north-east direction across the north-west angle of the Bay and passed over the F. L. V. *Star* and *Canopus*, both of which were carried away from their stations, and over the S.S. *Saint Regulus* and *Lincolnshire*, and the ships *Lena* and *Bann*, all of which suffered more or less severely from the hurricane winds and terrific sea. The Pilot vessel *Coleroon* foundered off the Orissa Coast during the night of the 5th. The storm was hence as severe and intense on the morning of the 6th as it was on the 31st and 1st.

It passed into Lower Bengal across the coast of the Sunderbunds to the east of Saugor Island and filled up with unusual rapidity, and the winds went down so quickly that little or no damage was done by the storm to the rice crops in South and East Bengal, whilst they benefitted largely from the rainfall which accompanied the storm. The storm filled up on the 7th in the Cachar, Sylhet and Mymensingh Districts of Assam and East Bengal.

The storm is of unusual interest, more especially on account of the following remarkable features :—

1st.—It originated in the Gulf of Siam outside the Indian area and passed across the Malayan Peninsula into the Andaman Sea and Bay of Bengal. It is the first large cyclonic storm of the Bay, for which there is clear

and conclusive evidence that it originated outside the Bay area

2nd—The storm was in its earlier stages of small extent although of great intensity The winds were consequently of extraordinary violence The storm increased in area as it approached the head of the Bay, but was of as great intensity when crossing the Sandheads as it was when in the Malayan Peninsula or the Andaman Sea It had an existence of at least nine or ten days, during at least seven of which it was an intense cyclone or typhoon

3rd—The path in the Bay of Bengal was almost unique The course or track was west north west on the 31st, 1st and 2nd It curved rapidly through north-west to north on the 3rd and 4th, and thence to north-east and east north east on the 5th In consequence of this recurvature several ships (*e g*, the *Bann* and *Lena*) encountered the storm twice in their passage up the Bay It was also probably owing to this unusual recurvature (greater than in any storm in the Bay during the past 20 years) that the P V *Coleroon* foundered

Brief account of the second storm

The second storm, described in Chapter III, originated on the 1st and 2nd in the sea area between the Maldives and the Travancore coast Light variable winds had prevailed in this area for some days previously, whilst steady and moderate north-east winds obtained over the whole of the north and centre of the Arabian Sea Very heavy rain commenced to fall in the area of light variable winds on the 31st and 1st A cyclonic whirl began to form in the area of heaviest rainfall on the 1st It commenced to move westwards on the 2nd and passed to the north of Minicoy during the night of the 2nd It thence advanced into a part of the Arabian Sea rarely traversed by ships, and no further information has hence been obtained of its progress During the next four days southerly winds obtained off the Malabar and Konkan coasts and gave squally weather with frequent thunder-showers in the Malabar and Konkan coast districts and the adjacent sea area

The storm is said to be the most violent that has been experienced in Minicoy for the past 25 years It is interesting as showing the conditions that probably usually prevail in the south east of the Arabian Sea during a period of squally, showery weather in Malabar in the month of November

Brief account of the third storm.

The third storm, an account of which is given in Chapter V, originated in the south east of the Bay on the 19th and 20th North east winds prevailed at that time over the north and centre of the Bay

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South-west winds of increasing intensity had obtained in the south of the Bay for some days previous. Variable unsteady winds prevailed in the intermediate area to the west of the Nicobars and south-west of the Andamans. Weather became squally with heavy rain in this area, whilst southerly winds advanced up the east of the Bay. A cyclonic whirl rapidly formed and developed in this area on the 19th and 20th. It began to advance northwards, and at the same time intensified rapidly. It was a cyclone of moderate extent and considerable intensity on the 21st. The centre began to recurve to the north-east on the 22nd and crossed the Arakan coast south of Sandoway about 11 A.M. or noon of the 23rd. It filled up rapidly during its passage across the Arakan Yoma, and was a very shallow depression on the morning of the 24th. It was then in Central Burma, and was determining a moderate burst of rain to the greater part of Burma—of great value for the rice crops. It broke up during the day.

The storm formed under what might be termed the normal conditions of storm generation in November. It was remarkable only for its path. The usual track of cyclones in November is west or west-north-west to the Madras coast, and their path is approximately straight. The storm in question advanced by a curved path into Central Burma. The recurvature was of the same character, but much less in amount than that of the first storm of the month. The circumstances of both were equally abnormal, and hence indicate the presence during the whole month of certain persistent abnormal conditions influential in determining the tracks of the cyclonic storms of the period which it is attempted to trace out in the concluding chapter of the Memoir.

CHAPTER II.

The Meteorology of India antecedent to the Cyclonic Storms of November 1891.

Abnormal features of the meteorology of the cold weather months, 1890-91.

The weather in the Indian land region during the year 1891 was very abnormal in many respects. The winter or cold weather months of January, February and March were unusually cloudy and rainy in Northern India. The rainfall during this period was heavier over the greater part of Northern India than has been known for many years. Accounts received from the hill districts show that the winter snowfall was excessive. In Northern Afghanistan, and some parts at least of the North-Western Himalayas, the snowfall was, according to local accounts, one of the heaviest that has occurred for many years. The

excessive character of the rainfall is indicated by the following returns for a few typical stations —

District	Representative station	Rainfall for period January to March			Ratio of actual to normal
		Actual 1891.	Normal	Variation from normal in 1891	
		Inches.	Inches	Inches	
PUNJAB	Rupar	7 28	3 37	+3 91	2 2
	Hoshiarpur	8 80	4 66	+4 14	1 9
	Sialkot	11 13	4 35	+6 78	2 6
	Ludhiana	8 95	3 76	+5 19	2 4
	Nowshera (Peshawar)	10 55	5 42	+5 13	2 0
NORTH WESTERN PROVINCES AND OUDH	Ranikhet	9 92	6 36	+3 56	1 6
	Agra	2 74	0 90	+1 84	3 0
	Lucknow	3 89	1 49	+2 40	2 6
	Allahabad	2 73	1 21	+1 52	2 2
	Gorakhpur	4 74	1 12	+3 62	4 2
	Benares	2 94	1 13	+1 81	2 6
BIHAR	Arrah	5 71	1 50	+4 21	3 8
	Dinapore	7 47	1 04	+6 43	7 2
	Motihari	5 16	1 37	+3 79	3 8
	Purnea	5 14	1 42	+3 72	3 6
	Bhagalpur	5 19	1 29	+3 90	4 0
	Jamtara	8 54	1 48	+7 06	5 8

The meteorological observations of the past 20 years have shown that excessive snowfall in the Himalayan and Afghan mountain region has a very marked effect upon the weather in India for some months afterwards

Abnormal features of the meteorology of the hot weather months and the south west monsoon, 1891

The following hot weather months (April and May) are always in years of excessive snowfall, cooler than usual in Northern India, and pressure decreases less rapidly than usual, and is consequently above the normal These conditions are antagonistic to the advent of the south west monsoon Hence, as a further consequence the south west monsoon sets in during such years later than usual and there is a strong tendency for the following south west monsoon rains to be very irregularly distributed and to be more or less deficient in large areas of Northern and Central India The excessive snowfall in the hill districts during the months of January, February and March 1891, was followed by all these abnormal conditions, as is fully shown by the following data —

1st —Temperature was considerably below the normal in Northern India during the months of April and May 1891, the deficiency being greatest in the plain districts nearest to the mountain area of ex

cessive snowfall. The following table gives variation data for these months for different provinces in Northern India :—

Province.	Variation of mean temperature from normal in the month of	
	April 1891.	May 1891.
	°	°
Punjab	—2·7	—2·3
North-Western Provinces	—1·4	—1·0
Rajputana	—0·4	—0·8
Sind	+1·0	—0·5
Central India	—0·2	—0·6
Bihar	—0·6	—0·3
Bengal and Orissa	+0·2	—0·6
Mean of Northern or Extra-tropical India	—0·6	—0·9

2nd.—Pressure was considerably above the normal over the whole Indian region in April and May, and the excess was greatest in North-Western India. The following table gives data establishing the fact :—

Province.	Variation from normal of mean pressure in the month of	
	April 1891.	May 1891.
	Inch.	Inch.
Punjab	+ ·050	+ ·040
Sind	+ ·020	+ ·038
Rajputana	+ ·036	+ ·032
Central India	+ ·032	+ ·023
North-Western Provinces	+ ·031	+ ·019
Central Provinces	+ ·035	+ ·016
Bihar	+ ·018	+ ·012
Bengal and Orissa	+ ·016	+ ·012
Whole of India	+ ·028	+ ·015
Tropical India	+ ·026	+ ·005
Extra-tropical India	+ ·030	+ ·024

3rd—The establishment of the south-west monsoon was very considerably retarded, more especially in Western and North-Western India The following gives the approximate dates of the setting in of the monsoon rains in different provinces and the normal dates ,—

General character of the south west monsoon rains in the period July to September 1891

Province	Date of setting in of monsoon rains 1891	Normal date of setting in of monsoon rains	Amount of retardation
Bombay . . .	21st June	5th June	16 days
Central Provinces .	28th	8th „	20 „
Central India .	3rd July	10th „	23 „
Rajputana . .	5th „	12th to 15th June	21 „
North Western Provinces .	24th „	30th „	24 „
Punjab .	25th „	3rd July	22 „

The preceding statement shows fully the great delay in the advance of the humid rain-giving monsoon current into Northern India The delay ranged from a fortnight in the Bombay Coast districts to three weeks or a month in the Central Provinces, Central India, Rajputana, the North-Western Provinces and the Punjab

4th—The rainfall of the south-west monsoon period proper, *i e*, from June to September, was more irregularly distributed than usual Some areas received excessive rainfall, whilst other areas obtained amounts not only much below the normal, but either so small in amount or so ill-timed as to be either insufficient for or injurious to the crops The areas of deficient and excessive rainfall, it may be noted, were to a certain extent indicated by the variations of pressure from the normal in May and June

The areas in which the rainfall was most excessive were—

(1) The North-Western Provinces, Bundelkhand and Baghelkhand

(2) The greater part of the Central Provinces and Berar.

(3) Lower Burma and Arakan

The areas of very deficient rainfall and of partial drought during the monsoon period were—

(1) West and Central Rajputana

(2) Mysore and South and Central Madras

(3) Upper Burma (probably).

The following gives average data of the rainfall of the south-west

monsoon period June to September in the areas of most excessive and deficient rainfall and a comparison with the normal rainfall :—

District.		Rainfall for period June to September.		
		Actual, 1891.	Normal.	Variation from normal in 1891.
		Inches.	Inches.	Inches.
Areas of most excessive rainfall.	Tenasserim	199·64	153·44	+46·20
	Lower Burma	104·52	77·07	+27·45
	Arakan	159·75	149·36	+10·41
	Central Provinces	50·02	43·65	+ 6·37
	North-Western Provinces	33·40	32·65	+ 0·75
Areas of very deficient rainfall.	Madras (Central)	6·11	15·76	— 9·65
	Madras (South)	2·50	6·03	— 3·53
	Mysore	13·63	18·07	— 4·44
	Rajputana (East)	17·74	24·77	— 7·03
	Rajputana (West)	7·38	12·42	— 5·04

Over the remainder of India the total rainfall of the monsoon period did not differ largely from the normal amount. When it is remembered that the rains were upwards of a month later than usual in beginning, the excessive character of the downpour in the North-Western Provinces, the Central Provinces and the eastern states of Central India will be realized.

It will thus be seen that the rainfall of the south-west monsoon period was very irregular; areas of drought and of excessive downpour alternating, and that in some of the areas of deficient rainfall the rainfall, that was received, occurred as heavy downpours for brief periods with longish intervals of dry weather.

5th.—The rains of the south-west monsoon period proper ceased almost simultaneously in the first week of October over the whole of Northern and Central India.

The following gives the dates of the last day of fairly general rainfall in each of the larger meteorological divisions or provinces of Northern and Central India :—

Province.	Date of last general rainfall of south-west monsoon, 1891.
Bengal	5th October.
Rajputana	5th „
North-Western Provinces and Oudh	5th „
Bihar	4th „
Central India	6th „
Punjab	4th „
Assam	5th „
Central Provinces	6th „
North Bombay	6th „

General character of the rainfall due to the retreating south west monsoon current in the Bay in October 1891

6th—The rainfall of the retreating south west monsoon in October was even more abnormally distributed than that of the south west monsoon proper. As a rule, the retreating south west monsoon current in October gives heavy rain to the North and Central Madras coasts, and moderate rain to the South Madras and Coromandel Coast districts In October 1891, when rainfall was ceasing in Northern India, general and heavy rain commenced in South Madras and continued more or less steadily throughout the month The intermediate area between Northern and Central India and South Madras (including the Deccan and North and Central Madras), received practically no rain after the first week of the month The following data for a few stations show the striking contrast between the very deficient rainfall in the Northern and Deccan districts of Madras and the excessive rainfall in South Madras in *October 1891* —

Area	Station	Rainfall for October		
		Actual 1891	Normal	Variation from normal in 1891
		Inches	Inches	Inches
North Madras	Vizagapatam	1 50	10 30	—8 60
	Alamur	*Nil*	9 11	—9 11
	Coringa	1 20	11 90	—10 70
	Cocanada	1 05	10 06	—9 01
	Ellore	0 68	6 2	—6 04
	Masulipatam	4 99	8 85	—3 86
Deccan	Bellary	1 00	4 27	—3 27
	Gooty	5 00	5 24	—0 24
	Cuddapah	2 55	6 81	—4 26
Central Madras	Nellore	3 00	11 41	—8 41
	Vellore	11 82	8 37	+3 45
	Madras	13 42	12 62	+0 80
	Arcot	9 59	6 55	+3 04
South Madras	Cuddalore	17 98	9 31	+8 67
	Tranquebar	20 05	10 19	+9 86
	Negapatam	14 70	10 17	+4 53
	Trichinopoly	10 11	6 92	+3 19
	Madura	15 10	7 94	+7 16
	Tanjore	12 25	6 16	+6 09

Another noteworthy feature of the October rainfall was the very serious deficiency in Bengal, Assam and Bihar Usually south-west humid winds obtain over the centre as well as the south of the Bay in October These winds influence Bengal and Bihar so far as to give them occasional rain-showers throughout the month Cyclonic storms also occasionally form or appear in the Bay of Bengal during the month, and usually give more or less general rain in Bengal The normal course of these storms is west-north west from the centre of the Bay to the Circars and Ganjam coasts or north into Bengal

The following rainfall statement giving data of the actual and normal average rainfall in the Province of Bengal for the month of October, taken from the Bengal Weather Report for the month, shows the very serious deficiency in the rainfall of the month in that area :—

Meteorological Division.	Rainfall of October.		
	Actual, 1891.	Normal.	Variation from normal.
	Inches.	Inches.	Inches.
Orissa	1·31	6·16	—4·85
South-West Bengal .	0·73	4·33	—3·60
East Bengal . . .	1·73	5·43	—3·70
North Bengal . .	2·02	4·38	—2·36
North Bihar . . .	1·37	3·54	—2·17
South Bihar . . .	1·50	3·30	—1·80
Chota Nagpur . .	0·53	2·97	—2·44

General character of the weather in the Bay of Bengal during the month of October 1891.

The weather in the Bay of Bengal in the month of October was abnormally quiet and not one cyclonic storm formed in it. Hence Bengal was deprived of this source of rainfall during the month. Also when the rains ceased in Northern India at the end of the first week of October, north-east winds extended with unusual rapidity over the whole of the north and centre of the Bay, and the humid winds in the south of the Bay merely gave squally weather with frequent rain to South Madras and the south of the Bay. The determination of the rainfall to South Madras is further indicated by the unusually small precipitation at Port Blair in the Andamans and Camorta in the Nicobars. The following gives data for these two stations :—

Station.	Actual rainfall of October 1891.	Normal rainfall of October.	Variation from normal.
	Inches.	Inches.	Inches.
Port Blair	5·65	12·17	—6·52
Camorta	8·04	13·33	—5·29

The preceding remarks have shown that the meteorology of India from June to September 1891, was characterized by very marked features and variations from the normal conditions. They have also indicated that the rainfall of the month of October in the Peninsula, due to the retreating south-west monsoon, was very abnormally distributed. Little or no rain fell in the northern and central districts, which usually obtain heavy rain in October. The southern districts, on the other hand, received frequent showers, and the rainfall was in general excess in the districts of Tanjore, Trichinopoly, Madura and South Arcot. This very peculiar distribution

of rainfall accompanied a very abnormal distribution of pressure which was very persistent and intensified in the last week

The more important features of the normal and actual mean distribution of pressure of the month of October, and the actual mean distribution of pressure in October 1891, can be seen at once by inspection of the charts in Plates I, II and III, at the end of the volume

The first two charts (Plate I) show by means of isobars drawn for pressure differences of 05′ the normal distribution of pressure in October

In the first chart the isobars indicate the mean distribution of pressure (as obtained from readings at 10 and 16 hours and the employment of corrections derived from the hourly observations taken at representative stations in India) The second chart gives the mean distribution of pressure at 8 A M in October The chief features of the 8 A M distribution of pressure are almost identical with the mean distribution.

The chief features of the normal distribution of pressure in India in October are— Chief features of normal distribution of pressure in the month of October in the Indian area (Plate I Charts 1 and 2.)

1st—Great uniformity of pressure over the whole of India Pressure is lowest in the Bay area and highest in Upper India, where it is nearly a tenth of an inch higher than over the centre of the Bay. Excluding Assam, Sind and the Punjab the range of pressure in the Indian land area is less than five hundredths of an inch

2nd—Almost absolute uniformity of pressure over the Bay area in which the mean range of pressure, so far as is indicated by the land observations, is almost certainly less than a hundredth of an inch It may be noted that the accumulating observations show that the normal pressure of October in the Bay is even more uniform than was indicated by the shorter periods of observation available when discussing the Backergunge and other cyclones of the October transition period

The abnormal features of the pressure distribution of October 1891, are shown in Charts 1 and 2 Plate II, and in the pressure variation and anomaly charts (1 and 2) of Plate III Statement of the abnormal features in the pressure distribution in the Indian area during the month of October 1891 (Plates II and III)

The two charts in Plate II give similar information to that contained in Plate I for the month of October 1891, Chart 1 showing the mean daily distribution of pressure and Chart 2 the distribution at 8 A M in that month It should be noted that in these charts the pressure has been not only corrected for temperature and reduced to sea level but has also been reduced to constant gravity (that of Lat 45°) Chart 1 of Plate III gives the variations of pressure from the normal

by means of lines of equal pressure variation drawn for differences of ·02",continuous lines denoting increased *pressure or positive variations* and brokenlines negative variations. Two parallel lines close together, one continuous and the other broken, is the line of no variation.

Chart 2 of Plate III shows the pressure anomalies or local variations of pressure over the whole Indian area after allowance has been made for the general excess of pressure, which was one of the more important features of the pressure distribution in the Indian area in October 1891.

The following gives the chief features in the distribution of pressure in October 1891 :—

(1) The mean pressure of the month of the whole Indian area was considerably in excess, by amounts averaging 0·36".

(2) The excess was greatest in Berar, the Central Provinces and the North Deccan, and hence there was a moderately large local excess of pressure in that area.

(3) The excess was least in amount in Burma, the Andamans and Southern India, and hence there was a moderate local deficiency of pressure which was greatest in Malabar and across the south and south-east of the Bay.

In consequence of these peculiar features the mean distribution of pressure in October 1891 differed in some important respects from the normal distribution, *e.g.*,—

1st.—The range of pressure over India was considerably greater than usual.

2nd.—Pressure was less uniform in the Bay than usual and was high in the north-west of the Bay, so that there were slight gradients favouring the prevalence of steady northerly winds.

3rd.—Pressure was somewhat lower in the east than in the west of the Bay, thus giving pressure relations between the Burma and Madras coasts opposite to those which usually obtain in October. The following data show this deficiency of pressure at the east coast as compared with the west coast stations of the Bay :—

STATION.	Mean pressure reduced to sea-level and to gravity 45° Lat.	STATION.	Mean pressure reduced to sea-level and to gravity 45° Lat.
	Inches.		Inches.
Saugor Island .	29·853	Akyab . .	29·847
Vizagapatam .	·849	Diamond Island	·837
Madras . .	·835	Port Blair .	·818
		Mergui . .	·821

These strongly marked variations of the pressure distribution of the month from the normal accompanied largish variations of the temperature and humidity conditions, and of the air movement over India during the month The following gives a brief statement of the important variations from the normal in these features Westerly winds set in over the Gangetic Plain during the second week of the month and extended rapidly eastwards into Bengal and prevailed with abnormal steadiness during the remainder of the month Winds were hence stronger and steadier than usual in Bengal and the Gangetic Plain, the increased steadiness being most marked in Bihar, where winds are generally very unsteady in October

Ch ef features of the air movement in October 1891

The following gives wind data for four representative stations in Northern India —

Province	Station	Wind Direction		Mean Steadiness		Total daily wind velocity in miles	
		Actual	Normal	Actual	Normal	Actual	Normal
				%	%		
		° W	N 42° W	34	13	43	41
		° W	N 21° E	21	4	52	45
		° W	N 12° W	47	16	47	51
		° W	N 10° E	43	13	199	156

Winds were even more abnormal in Burma where southerly winds generally continue until the end of the month In October 1891, southerly winds withdrew at the end of the second week of the month and were replaced by northerly winds, winds were steadier and on the whole stronger than usual The following gives mean wind data for Port Blair and three stations in Lower Burma —

Station	Mean D rection		Mean Steadiness		Total Daily Wind velocity in miles.	
	Actual	Normal	Actual	Normal	Actual	Normal
			%	%		
Port Blair	S 69° E	S 5° W	38	24	99	149
Mergui	N 4° E	S 79° W	37	22	52	35
Akyab	N 28° E	S 35° E	31	12	60	58
Rangoon	N 31° W	S 46° E	14	27	72	76

Winds were very light and irregular in Central India and the Central Provinces They were very abnormal in Madras, more especially at the southern stations, where the winds of the month contained an usually strong northerly or easterly element. This was

evidently due to the position of the area of low pressure in the south of the Bay instead of in the centre. The following data illustrate this feature:—

STATION.	MEAN DIRECTION.		MEAN STEADINESS.		TOTAL DAILY WIND VELOCITY IN MILES.	
	Actual.	Normal.	Actual.	Normal.	Actual.	Normal.
			%	%		
Madras . . .	N. 55° E.	N. 35° E.	58	10	128	122
Trichinopoly . .	N. 44° E.	N. 45° W.	23	36	85	92
Salem . . .	N. 72° W.	S. 52° W.	63	39	57	64
Negapatam . .	N. 32° W.	S. 51° W.	29	30	72	89

Temperature conditions, October 1891.

Temperature differed little from the normal in October, but was generally in defect, due chiefly to the excessive rainfall of the months of August and September. The following gives a statement of the temperature data of the month:—

DIVISION.	VARIATION OF			ACTUAL.		
	Mean maximum temperature from normal.	Mean minimum temperature from normal.	Mean temperature from normal.	Mean maximum.	Mean minimum.	Mean temperature.
	°	°	°	°	°	°
Burma Coast and Bay Islands . . .	+1·1	—0·7	+0·2	89·1	74·4	81·7
Burma Inland . . .	+1·1	—5·0	—2·0	90·4	70·7	80·6
Assam	—0·5	—2·4	—1·5	86·0	69·8	77·9
Bengal and Orissa . .	+0·6	—2·0	—0·7	87·6	71·6	79·7
Gangetic Plain and Chota Nagpur . . .	—0·6	—1·8	—1·2	88·0	68·0	78·0
Upper Sub-Himalayas .	—4·7	+0·3	—2·2	85·7	62·6	74·2
Indus Valley and North-West Rajputana . .	—0·7	+1·6	+0·5	94·6	66·9	80·8
East Rajputana, Central India and Guzerat .	—0·9	—0·1	—0·5	91·1	67·2	79·2
Deccan	—0·3	—1·2	—0·8	87·9	65·1	76·6
West Coast . . .	+1·7	—0·7	+0·5	87·1	72·8	80·0
Southern India . .	—0·3	+0·1	—0·1	87·6	73·0	80·3

Humidity conditions, October 1891.

The air was much drier than usual, and the cloud amount much below the average in North-Eastern India, and to a less extent in the

Deccan and West Coast Districts The following table gives com parative data —

Division	Variation of		Cloud amount	
	Aqueous vapour pres sure from normal	Relative humid ty from normal	Actual.	Variation from normal
	Inch			
Burma Coast and Bay Islands .	— 009	—3	4 5	—1 3
Assam .	— 046	—1	3 5	—0 9
	— 077	—8	3 2	—1 2
	— 009	0	2 1	—0 6
	+ 050	+10	1 7	+0 9
Rajputana .	+ 016	+1	1 1	+0 4
East Rajputana, Central India and Guzerat . . .	+ 048	+5	1 5	—0 3
Deccan .	— 017	0	3 1	—0 9
West Coast . .	— 034	—3	2 6	—1 4
Southern India . .	+ 009	0	6 5	+0 4

The Punjab received a moderate burst of rain in the first week of the month, which gave it more than the normal rainfall The rainfall of the month was more or less in defect in all other districts except the west coast and some parts of South Madras. The deficiency was most marked in Bengal and Bihar The following table indicates fairly the distribution of the rainfall of the month — Rainfall October 1891

Division	Rainfall.			
	Mean Rainfall of month	Mean Normal rain fall of month.	Variation from normal	Percentage ratio of actual to normal
	Inches	Inches	Inches	
Burma Coast and Bay Islands .	5 90	9 53	—3 63	62
Burma Inland . . .	2 67	4 44	—1 77	60
Assam .	3 30	4 49	—1 19	73
	1 75	5 18	—3 63	34
	1 68	2 81	—1 13	60
. .	0 66	0 88	—0 22	75
Deccan	2 40	3 02	—0 62	80
West Coast . . .	10 25	7 48	+2 77	136
South India . . .	7 86	8 16	—0 30	96

In the preceding remarks the chief features of the distribution of pressure in October 1891 have been stated. The excess of pressure in the Indian area was in part due to the heavy rainfall of the pre ceding month, and the cessation of the rains in Northern and Central India at the end of the first week of October. The relations of pressure changes to rainfall are very frequently marked in India One of

these relations is the rise which occurs immediately after the occurrence of very heavy rain either on the large or small scale. The rainfall of September was very heavy over a large part of India, and was excessive in the Central Provinces. Pressure was slightly in defect in the Indian area in September, and was locally in defect in the Central Provinces, Baghelkhand, Bundlekhand and adjacent portions of the North-Western Provinces. This area of local deficiency of pressure was also the area of abnormally heavy rain. The cessation of rainfall in Northern and Central India in the first week of October was followed by a general increase of pressure in Northern and Central India and a considerable local excess in the Central Provinces.

Brief summary of the most important abnormal features during period January to October 1891.

The following gives a brief summary of the most important abnormal features of the meteorology of the period January to October 1891, described in the preceding paragraphs:—

1st.—Excessive snowfall in the mountain regions adjoining North-Western India, and much heavier rain than usual in Northern India during the months of January, February and March.

2nd.—Drier and somewhat cooler weather than usual in the hot weather months of April and May in Northern India.

3rd.—Protracted delay in the setting in of the monsoon rains over the whole of Northern and Central India. The months of June and July were hence abnormally dry and hot over the interior of Northern and Central India, *i.e.*, the Central Provinces, North Deccan, Central India, Rajputana, the North-Western Provinces and the Punjab.

4th.—Very abnormal distribution of rainfall during the south-west monsoon proper. Lower Burma, the North Western Provinces, East Punjab, East Rajputana and the Central Provinces received excessive rain; West and Central Rajputana, Madras, and Upper Burma very deficient rain; and Bengal very irregularly-distributed rain.

5th.—The south-west monsoon rains ceased abruptly, and almost simultaneously, over the whole of Northern and Central India at the end of the first week of October.

6th.—The immediate and sudden transfer of rainfall due to the retreating south-west monsoon to South Madras at the end of the first week of October. The intermediate areas of the Deccan, and North and Central Madras received little or no rain during the remainder of the month. This was associated with certain peculiar features of pressure distribution stated in the preceding paragraphs.

7th—Abnormally quiet weather in the Bay of Bengal during the month of October. In consequence of the non-occurrence of cyclonic storms North Eastern India received practically no rain during the last three weeks of the month

The weather in the month of October 1891 was hence very remarkable It was largely dependent upon, and related to, abnormal pressure conditions in India As these pressure conditions were very persistent during the month, and intensified during the last week of the month and were hence largely influential in determining the tracks of the cyclonic storms in November, it appears to be desirable to give a brief account of the weather in the Bay of Bengal and Arabian Sea during the month, drawn up from the marine data collected from vessels entering the Ports of Calcutta and Bombay, and a statement of the chief features of the meteorology of India during the last three days of the month

Summary of weather in the Bay of Bengal in October 1891

At the commencement of the month light variable winds (force 1 to 3) prevailed over the whole of the Bay of Bengal excepting in the south and south east, where weather was squally with moderate west to west-south-west winds Winds became lighter in the north of the Bay during the next three or four days, and on the 5th light airs and calms obtained in the north and centre of the Bay Occasional heavy rain-showers were experienced at this time in different parts of the Bay For example, the ship *Duchess of Edinburgh*, in Lat 14° 10′ N and Long. 89° 52 E on the 7th, had light variable airs and very heavy rain in the morning The S S *Ramose Head*, in Lat. 10° 21′N. and Long 95° 54 E on the 10th, had heavy rain squalls

Light north north east to north-east winds set in at the head of the Bay on the 8th and extended rapidly southwards Light to gentle north-east breezes or variable airs obtained over the north and centre of the Bay on the 9th and 10th On the 11th light north-east winds prevailed over the greater part of the Bay Strongish south-west winds continued off the Ceylon coast, and weather was squally there and in the south of the Bay generally. No change occurred during the next few days, except that the north east winds appeared to strengthen steadily North east winds (force from 1 to 4) prevailed on the 16th over the north and west of the Bay. Weather was also more squally in the south and south-east of the Bay The ship *Skelmorlie*, in Lat 15° 59′N and Long 90° 29′E on the 19th, had south winds and very heavy squalls The weather became more unsettled and squally during the next four days, and the majority of vessels in the south and centre of the Bay reported squalls with more or less heavy rain The S S *Glencona*, in Lat 16° 1′N and Long 91° 41′ E

on the 21st, had thick rainy weather. The *S. S. Clan Mackintosh*, in Lat. 1° 21′N. and Long. 80° 26′E. on the 21st, had very heavy rain, and on the 22nd, when off Madras, had torrents of rain. During this period, light north-east or variable winds with clear weather obtained in the north of the Bay.

Weather improved on the 25th. Light to moderate north-east winds obtained during the remainder of the month over the greater part of the Bay. Weather was squally off the Coromandel Coast, and moderate but somewhat unsteady south-west to south-east winds prevailed in the south-east of the Bay.

Summary of weather in the Arabian Sea in October 1891.

Light, unsteady and variable winds prevailed over the greater part of the Arabian Sea at the beginning of the month. Weather was squally in the south and south-east, off the Malabar Coast. Thus the S.S. *Argus*, in Lat. 18° 19′N. and Long. 76° 59′E. on the 4th, had frequent hard squalls from the west-north-west (force 6). On the 5th, light north-east or variable winds obtained to the north of Lat. 12°N. The winds increased in force on the 6th and 7th, and on the 8th the S. S. *Indrapura*, in Lat. 15° 54′N. and Long. 57° 52′E., had fresh easterly winds and occasional heavy rain squalls, and the S. S. *Egremont Castle*, in Lat. 15° 24′N. and Long. 58° 42′E., had hard squalls. Similar weather was experienced for some days in that part of the Arabian Sea. On the 13th light to moderate north-east monsoon winds obtained over the Arabian Sea to the north of Lat. 9° or 10°N. Further south winds were very unsteady and weather was showery. Off the Malabar coast weather continued squally with frequent rain. Thus the S. S. *Cathay*, in Lat. 8° 27′N. and Long. 76° 23′E. on the 16th, had squally weather and continuous heavy rain during the day, and the *Lorna Doone*, in Lat. 10° 24′N. and Long. 68° 14′E., had variable winds with heavy squalls. North-east winds (force 2 to 4) prevailed over nearly the whole of the Arabian Sea to the north of Lat. 8°N. during the third week of the month, and weather was fine except off the Malabar and West Ceylon coasts, where it was squally and showery. Strong east-north-east winds (force 6) were experienced by the S.S. *Netherley Hall* in the Gulf of Aden on the 17th.

No important change appears to have occurred in this sea area during the remainder of the month. Weather continued squally with unsteady winds off the Malabar and Ceylon coasts and probably in and to the north of the equatorial belt, but was fine with light to moderate winds in the centre and north of the Arabian Sea.

The wind data of the first six days of the month indicate that the winds shifted rather rapidly from west through west-north-west and north-west to north and north-east, when the south-west monsoon

current retreated from the north and central area (between Socotra and Bombay) of the Arabian Sea

The following gives in brief detail the chief features of the meteorology of the Indian area during the last three days of the month

The pressure changes were fairly regular during the last fortnight of October Pressure increased from the 16th to the 19th, fell from the 20th to the 22nd, increased on the 23rd and 24th, and decreased on the 25th It increased again on the 26th and 27th, and gave way slightly on the 28th It was largely in excess of the normal on the 28th. Weather was fine, winds light, and skies clear at this time over the whole of India with the exception of South Madras, where skies were clouded and frequent showers were falling

Chief features of the meteorology of India on 29th October

29th October —Pressure had given way locally during the previous 24 hours in Upper India A very shallow depression covered Sind and the South West Punjab on the morning of the 29th Pressure was very uniform in the Bay Very light winds and calms were registered in the Punjab, and light unsteady winds in the Gangetic plain Winds ranged between north and north-west in the west and north coast districts of the Bay North-west winds had been unusually prevalent at the Coromandel Coast stations during the preceding week

The following table gives the mean variations of pressure and temperature from the normal, the mean air movement and mean amount of cloud in different provinces —

Province	Variation of mean actual pressure from normal	Mean pressure anomaly	Variation of mean temperature from normal	Mean cloud amount
	Inch.	Inch	°	
Burma	+ 005	− 024	− 1 5	1 1
Bengal and Assam	+ 026	− 003	+ 1 0	3·0
North Western Provinces	+ ·027	− 002	− 1 7	1 7
Punjab	− 003	− 032	− 1 9	0 7
Central Provinces	+ 033	+ 004	+ 3 0	3 1
Guzerat and Central India	+ 035	+ 006	− 1 1	0 1
Sind and Rajputana	+ 026	− ·003	− 1 3	0
Bombay	+ 041	+ 012	+ 1·7	3 4
Madras	+ ·055	+ 0·6	+ 0 5	2 6

The mean pressure of the Indian area was 029″ above the normal of the day Pressure was locally in moderate defect in Burma and the Punjab, and in moderate excess in Madras or the southern half of the Peninsula. Skies were clear in North-Western India, and

were lightly clouded in the Peninsula and North-Eastern India. Light showers had fallen in some districts of South Madras and in Travancore, but the amounts were generally small.

The marine data indicate that weather was fine with light winds over the north and centre of the Bay, and that it was squally with unsteady south-west winds in the south of the Bay.

Chief features of the meteorology of India on the 30th October. (Plate IV, Charts 1 and 2).

30th October.—The barometric changes of the next 24 hours were everywhere small in amount and made no important change in the pressure distribution. Temperature decreased from 1° to 6° over the whole of North-Eastern and Central India and the North Deccan. Some showers were again received in South Madras and Malabar. In Lower Burma the barometer was steady, winds light, but normal in direction (ranging between north and north-east), and skies clear, or very lightly clouded.

The mean pressure of the Indian land area was ·041″ in excess. The local anomalies were unchanged in general character. The deficiency in Burma was more marked, and the excess in the east and centre of the Peninsula was more general than on the previous day. Charts 1 and 2, in Plate II, show the 8 A.M. distribution of pressure and of the pressure anomalies of this day.

The following gives mean data showing that the general meteorological features were unchanged :—

Province.	Variation of mean actual pressure from normal.	Mean pressure anomaly.	Variation of mean temperature from normal.	Mean cloud amount.
	Inch.	Inch.	°	
Burma	−·001	−·042	−0·6	1·5
Bengal and Assam	+·046	+·005	+0·1	1·7
North-Western Provinces	+·062	+·021	−2·5	0·6
Punjab	+·015	−·026	+0·1	3·8
Central Provinces	+·064	+·023	−0·2	1·8
Guzerat and Central India	+·054	+·013	−2·4	0
Sind and Rajputana	+·024	−·017	−0·1	0
Bombay	+·027	−·014	+1·5	3·8
Madras	+·062	+·021	+1·1	4·0

An important feature was the decrease of cloud in North-Eastern and Central India which had taken place during the previous 24 hours.

Chief features of the meteorology of India on the 31st October. (Plate V).

31st October.—A brisk to rapid increase of pressure occurred during the next 24 hours. The rise was greatest in Upper India. These changes modified the distribution of pressure considerably. The shallow depression which lay over Sind on the 29th and 30th had filled up, and pressure was now highest in the North Punjab, East Rajputana and Central India, where it slightly exceeded 30·10 .

The increase of pressure on the 31st was greatest in the Punjab, and decreased with approximate uniformity southwards It was very uniform over the whole of Central and North Eastern India and Burma, and it is hence possible, although so far as can be judged from the small extent of the storm which was approaching the Andaman Sea from the Gulf of Siam not probable, that a portion of the excess in Burma and North Eastern India may have been due to outflow from the cyclonic storm

The following table gives variation data for the 31st —

Province	Variat on of mean actua pressure f om no mal of da y	Anomaly	Va iation of mean tempe a ture from nor mal of dav	Mean cloud amount.
	Inch	Inch	°	
Burma	+ 087	– 024	–0 6	1 0
Bengal and Assam	+ 122	+ 011	+0 1	0 4
North Western Provinces	+ 128	+ 017	–2 6	0
Punjab . .	+ 117	+ 006	+0 1	0 8
Central Provinces .	+ 129	+ ·018	–0 2	8
Guzerat and Central India	+ 112	+ 001	+2 4	0·3
Sind and Rajputana .	+ ·107	+ 006	–0·1	0 4
Bombay .	+ 087	– 0·4	+1 5	4 2
Madras . . .	+ 109	+ 00?	+1 1	3 6

Chart 1, Plate V, exhibits the actual distribution of pressure at 8 A M of the 31st. The chart shows that moderately steep gradients obtained in the west of the Peninsula and the north of the Bay Winds were light in the Gangetic plain and North Western India Moderate north winds prevailed in Bengal and Burma, and moderate easterly winds in the Deccan. Skies had cleared in North Eastern India, and were very lightly clouded in Burma They were partially clouded in the south of the Peninsula, but rain had almost ceased to fall there.

Chart 2, Plate V, gives the distribution of the pressure anomalies of the 31st This chart shows that there was a considerable excess of pressure in the central part of the Indian land area extending from the South east Punjab to the coast of the Circars This area of local excess of pressure had been a persistent feature for some time and was hence a permanent feature of the meteorology of India for several days antecedent to the arrival of the Port Blair cyclone in the Indian area

Weather in the Bay of Bengal and Arabian Sea on 31st October.

The following tables give a summary of the observations taken by ships in the Bay of Bengal and Arabian Sea on this day:—

Bay of Bengal.

Name of Vessel.	Position. 8 A.M. Latitude. N.	Position. 8 A.M. Longitude. E.	Barometer. 8 A.M. Actual.	Barometer. 8 A.M. Corrected and reduced to sea level and constant gravity.	Wind. 8 A.M. Direction.	Wind. 8 A.M. Force.	Weather.
	° ′	° ′	Inches.	Inches.			
S. *London Hill*	4 30	93 7			W.	1	Unsteady winds and heavy rain.
S. S. *St. Regulus* . .	7 39	98 6			N.-W.	2	Clear.
S. S. *Lincolnshire* . .	8 26	82 57	29·96	29·86?	N.	2	Very heavy rain and unsteady wind.
S. S. *Congella* .	10 47	81 3			E.-N.-E.		Rainy and squally.
S. S. *Colaba* .	16 17	94 12	29·98	20·93	N.-E.	2	Fine.
S. S. *Ganges* .	16 36 (Noon.)	83 36	30·13	29 99	N.-E.	4	Fine with passing clouds.
S. S. *Chelydra*	17 51	90 37	30·26		N.-E.	4	Fine.
S. S. *Highfield*	19 1	86 43			N.-E.	4	Fine and clear.
S. S. *Thisbe* .	19 50	87 30	30·09		N.-E.		
S. S. *Charles Dickens* .	20 7	88 4	29·87	30·00	N.-E.	3	
S. *Tasmania* .	20 9	87 47	30·17	30·04	N.-E.	2	Fine.
S. S. *Nowshera*	A little to north of Saugor.		30·00		N.-N.-E.	2	Cloudy.

Arabian Sea.

Name of Vessel.	Latitude. N.	Longitude. E.	Actual.	Corrected.	Direction.	Force.	Weather.
S. S. *Fultala* .	0 12S	73 54	30·15	29·90	E.-S.-E.	2	Cloudy.
S. S. *Venetia* .	6 35 (Noon.)	78 59	30·00		Var.	2	Overcast.
S. S. *Rohilla* .	8 51 (Noon.)	69 50	29·98		Var.	2	Overcast.
S. S. *Guayacan*	10 59	64 26	29·14?		N.	1	Fine.
S. S. *Lombardy*	11 59	75 0	29·98		Var.	2	Fine.
S. S. *Rajputana*	14 29	66 17	30·34		S. E. by S.	4—5	Cloudy.
S. S. *Lady Havelock* .	15 40	58 43	30·20		E.-N.-E.	3	Fine.
S. S. *Aurora* .	16 12	65 15			N.-E.	2	Fine.
S. S. *Pekin* .	17 38	64 47	30·12		N.-E.	2	Fine.
S. S. *Mobile* .	17 40	66 11	30·00		N.-W.	2	Fine.
S. S. *Etolia* .	18 39 (Noon.)	58 17	29·75		S.	2	Fine.
S. S. *Calder* .	24 38	59 30	29·68		W.	2	Hazy.
S. S. *Kilwa* .	25 55	57 07	30·00		S.-E.	2	Fine.

The two preceding statements indicate that fine and apparently settled weather with light to moderate north-east winds prevailed over nearly the whole of the Arabian Sea and Bay of Bengal on the 31st. Weather was cloudy with showers in the extreme south, but this was in no way abnormal. Over the greater part of the two sea areas weather was much finer than usual in October.

The following statement giving 8 A M observations at the observatories on the coast of the Andaman Sea shews that weather was fine at that hour in Lower Burma Tenasserim and the Andamans They give no indication of approaching bad weather —

Station	Pressure			Wind		Humidity		Amount of cloud at 8 A M	Rainfall in past 24 hours	Weather
	8 A M	Change in past 24 hours.	Variation from normal of day	Direction	Average velocity in miles per hour	8 A M	Change in past 24 hours			
	Inches	Inch.	Inch						Inch	
Camorta	29 951	+ 025	?	Calm	4	86	—11	10	0 07	Cloudy
Port Blair	29 899	+ 048	?	N-N E	5	88	— 2	4	0 16	
Diamond Island	29 950	+ 074	+ 069	N.-E	5	79	+ 6	3	Nil	Sea slight
Moulmein	29 962	+ 090	+ 064	N W	3	85	—13	0	0 41	
Tavoy	29 932	+ 063	?	Calm	1	85	— 1	0	*Nil*	
Mergui	29 928	— 018	?	N N E	2	94	+ 6	9	*Nil*	

General character of weather at the end of October 1891 in the Indian sea area

The weather at the end of the month was such as is usually experienced during the last fortnight of November or beginning of December (*i e*, towards the end of the retreating south-west monsoon) Light south west to west winds were blowing at the entrance to the Bay as far north as Lat 5°. Light variable airs prevailed from that latitude to Lat 9° or 10° N In this belt of calms and variable winds skies were clouded and showers were of occasional occurrence Pressure was very uniform over this belt and in the Andaman Sea, and thence increased northwards to the head of the Bay The southerly gradients were steeper than they usually are in October, and hence moderate north east winds obtained over the north and west of the Bay. Weather was fine, skies clear and the sea generally smooth

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CHAPTER III.

Cyclonic Storm in the Arabian Sea from the 1st to the 3rd November

Origin of the storm.

The information respecting this storm is exceedingly limited It apparently formed off the Malabar coast on the 1st and 2nd and advanced westwards through the Nine degree Channel immediately to the north of Minicoy, and thence passed into a part of the Arabian Sea rarely traversed by vessels The storm is interesting, as it shows the existence at this time of a strong humid current in the south-east of the Arabian Sea and hence that the south west monsoon currents were still in possession of the sea area to the north of the equatorial belt

Conditions in the Arabian Sea prior to the storm.

The general conditions of the weather in the Arabian Sea during the month of October have been stated in the preceding chapter. During the last week of the month weather was fine with light to moderate north-east winds (force 2 to 5) over the whole sea area to the north of Latitude 10° N.

The following extracts from the log of the S.S. *Athens* crossing the Arabian Sea from Socotra to Ceylon at this time show very clearly the weather in the centre of the Arabian Sea immediately antecedent to the storm :—

Month and Date.	Hour.	Position at noon.		Barometer corrected and reduced to sea level and constant gravity.	Wind.		Weather Remarks.
		Latitude. N.	Longitude. E.	Inches.	Direction.	Force.	
Oct. 29th	4 A.M.	...	...	...	N.-E.	2	Clear.
	8 A.M.	...	...	29·96	N.-E.	2	
	Noon.	13° 2′	60° 40′	...	N.-E.	1	Lightning.
	4 P.M.	...	...	...	N.-E.	1	Clear.
	8 P.M.	...	...	29·96	N.-E.	4	Cloudy.
	Midnight.	...	...	...	N.-E.	5	Cloudy.
30th	4 A.M.	...	...	...	N.-E.	4	Clear.
	8 A.M.	...	...	29·92	N.-E.	4	Clear.
	Noon.	12° 23′	63° 46′	...	N.-E.	2	Moderate sea.
	8 P.M.	...	...	29·90	N.-E.	2	Cloudy.
	Midnight.	...	...	...	E.-N.-E.	5	Cloudy.
31st	4 A.M.	...	...	...	Variable.	2	Cloudy.
	8 A.M.	...	...	29·90	N.-E.	4	Cloudy.
	Noon.	11° 14′	67° 15′	...	N.-E.	5	Cloudy.
	8 P.M.	...	...	29·90	N.-E.	5	Overcast.

Weather was fine with light to moderate north-east winds over the north and centre of the Arabian Sea. It was showery with light unsteady winds off the Travancore and West Ceylon coasts, and probably over the south-east portion of the Arabian Sea.

Meteorology of 1st November in the

November 1st.—The first indications of the formation of the depression and storm under discussion were shown on this day off the Malabar Coast. The barometer had fallen slightly during the pre-

vious 24 hours Skies were n ore clouded and the wind had shifted from north north east to south south west at Colombo

South-east of the Ara b an Sea (Chart I Plate VI)

The follow ing gives available 8 A M observations for this area —

Station	Barometer: Actual reduced to sea level and constant g av ty (Lat 45)	Barometer: Change s nce 8 A M p ev ous day	Barometer: Var at on from no mal	Wind: D ect on	Wind: Ave age veloc ty n m les per hour	Wind: Pe centage at o of actual to no mal	Temperature: Max mum	Temperature: Va at on f om nor mal	Temperature: M n mum	Temperature: Va at on from nor mal	Cloud p oport on	Ra nfall n past 24 hou s	Weather
							°		°				
[illegible]					4	67	84 5	?	75 0	?	4	0 05	Sea sl ght.
					6	?	83 0	?	68 5	?	10	*Nil*	
[illegible]					2	?	88 2	+2 5	74 7	+0 6	5	1 29	Sea sl ght
[illegible]					13	?	78 2	?	73 8	?	10	*Nil*	D zzl ng

These observations show that pressure was above the normal, and that the pressure changes of the previous 24 hours were small and unimportant except, perhaps at Minicoy where pressure was giving way briskly North to north east winds prevailed at Minicoy, Cochin and Trivandrum, and winds had strengthened considerably and were blowing freshly at Minicoy Skies were cloudy and weather showery

The following table gives a summary of 8 A M observations taken on board vessels in the south and centre of the Arabian Sea —

Name of Vessel	Position: Latitude	Position: Long tude	Barometer: Actual	Barometer: Co e ed and reduced to s a e e and cons ant g av ty	Wind: D ect on	Wind: Force	State of Sea	Weather
		°	Inches	Inches				
S S *Fultala*	2 35	76 42	30 8	29 93	W S W	4		Ra n squalls.
S S *Plassey*	6 33	78 16			S E	2		F ne
S S *City of Vienna*	7 17	74 31	29·76	29 80	S	3		Overcast w th l ght rain and pass ng squalls
S S *W ldcraft*	7 33	78 47		...	Calm	0		Ra ny appearance
S S *A sam*	8 52	76 27	30 20	9 90	N N E	3		
S S *Drummond*	10 2	63 13	30 21	29 91	E by N	2	Smooth.	F ne and clear
S S *Khandalla*	at Coch n		30 24	29 90	F	1		
S S *Manora*	11 46	60 49	30 01	29 93	N N E	4		F ne.
S S *Bohemia*	12 49	53 33	30 16	30 05	E	2		F ne
S S *Ursa*	(1 51 noon	74 54)			Calm	0	Smooth.	
S S *Athens*	10 15	70 10	30 06	29 88	Variable	1		Light va able winds and ove cast

The preceding data establish that weather was fine with light winds off the west-coast and in the Arabian Sea to the north of Lat. 9° N or 10° N. It was showery and squally to the west of the Ceylon coast, where light southerly winds were blowing. The barometric observations at Minicoy and on board the S. S. *City of Vienna* establish that there was a shallow depression between Minicoy and the adjacent mainland. The chart of the day (Plate VI) shows the position and character of the depression.

The S. S. *Athens* and *City of Vienna* were approaching the central depression—the former advancing in an east-south-east direction towards it and the latter proceeding in the opposite direction towards and across it.

The following gives the whole of the meteorological information of the 1st in their logs :—

Name of Vessel.	Hour.	Position.		Barometer Corrected and reduced to sea level and constant gravity.	Wind.		Weather.
		Latitude. N.	Longitude. E.		Direction.	Force.	
		° ′	° ′	Inches.			
S. S. *Athens.*	4 A.M.	...	...	...	Variable	1	Overcast.
	8 A.M.	10 15	70 10	29·88	Do.	2	Do.
	Noon	9 54	70 34	...	Do.	5	
	4 P.M.	...	...	29·88	Do.	5	Overcast and occasional squalls.
	8 P.M.	...	...	...	Do.	5	Overcast with fresh variable winds. Heavy thunder and slight confused sea.
	9 P.M.	...	...	...	Do.	...	Fierce squalls and downpour of rain. Heavy thunder and lightning.
	9-40 P.M.	...	...	...	Do.	...	Thick heavy rain.
	Midnight.	...	...	...	Do.	5	Squalls with incessant rain.
S. S. *City of Vienna.*	4 A.M.	...	...	...	W.	3	Overcast; light rain and passing squalls.
	8 A.M.	...	...	29·80 ?	S.	3	Ditto ditto.
	Noon	7 6	75 25	29·89 ?	Variable	2	Cloudy sky; passing squalls and slight sea.
	4 P.M.	...	...	29·93 ?	E.	...	Ditto ditto.
	8 P.M.	...	...	29·89 ?	E.	...	Passing squalls with incessant rain.
	Midnight.	...	...	29·91 ?	Variable	3	Ditto ditto.

Special observations at Minicoy on 1st November.

The observer at Minicoy commenced to take observations at short intervals from noon of the 1st, when the weather appeared to him suggestive of the approach of a storm. His observations show that pressure was very steady throughout the whole day, but that very heavy

rain fell, winds were strong from north-east, and sea rough to boisterous throughout the day. The following gives his observations taken during the day :—

HOUR.	Barometer corrected and reduced.	Barometer diurnal variation eliminated.	Wind direction.	LOWER CLOUDS.		State of Sea.	WEATHER.
				Kind.	Direction.		
	Inches.	Inches.					
Noon.	29·756	29 744	N.-E.	Pk.	N.-E.	Very rough.	Thunderstorm with rain.
0-30 P.M	·732	·730	N.-E.	Do.	N.-E.	Do.	Continued rain.
1 „	·725	·734	N.-E.	Do.	N.-E.	Boisterous.	Ditto.
1-30 „	·687	·709	E.-N.-E.	Do.	N -E.	Do.	Ditto.
2 „	·693	·725	E.-N -E.	Pc.	N.-E.	Do.	Ditto.
2-30 „	·679	·718	N -E.	Do.	N.-E.	Rough.	Ditto.
3-5 „	·675	·721	N.-N.-E.	Pc. K.	N.-E.	Do.	Drizzling.
3-30 „	·675	·722	N -E.	Do.	N.-E.	Do.	Continued rain.
4 „	·693	·743	N.-N.-E	Do.	N.-E.	Do.	Drizzling.
4-30 „	·700	·745	N.-N.-E.	Pc.	N -E.	Do.	Ditto.
5 „	·712	·752	N.-N.-E.	Do.	N.-E.	Do.	Ditto.
5-30 „	·723	·755	N.-E.	Do.	N.-E.	Do.	Ditto.
6 „	·730	·752	N.-E.	Do.	N.-E.	Do.	Overcast and squally.
6-30 „	·740	·754	N.-E.	Do.	N.-E.	Do.	Drizzling.
8 „	·758	·745	N.-E.	Do.	N.-E.	Do.	Ditto.
10 „	·766	·734	N.-N.-E.	Pk.	N.-E.	Very rough.	Continued rain.

5·59 inches of rain fell between noon of the 31st and noon of the 1st. The mean velocity of the wind, as registered by the Beckley's anemograph, used in connection with the tidal observations, was 33 miles per hour between 9 A.M. and 6 P.M.

In the preceding table the second column gives the observations at Minicoy corrected for temperature and reduced to sea level and constant gravity. In the third column the pressure data are given after the effect of the ordinary diurnal oscillation has been eliminated, so that the figures in that column represent the changes due to the abnormal features of the weather during the day. These figures show that pressure was fairly steady throughout the day with a slight tendency to rise, and hence apparently indicate that the cyclonic storm was in the initial stage and was developing very slowly. The only feature of importance was the continuous heavy rainfall in the area of disturbance.

The whole of the information hence establishes that winds were variable and light both in the eastern and western quadrants of the depression. They also indicate that weather became more squally during the day, and that very heavy rain was falling at Minicoy and over the neighbouring sea area, and that the area of heavy rainfall increased considerably during the day, more especially in the eastern quadrant. The centre of the depression, so far as can be judged, was between Minicoy and the 8 A.M. position of the *City of Vienna*, and probably in about Lat. 7½° or 8° N. and Long. 74° E.

Probable position of centre of depression and storm.

The preceding data establish that weather was fine with light winds off the west-coast and in the Arabian Sea to the north of Lat. 9° N or 10° N. It was showery and squally to the west of the Ceylon coast, where light southerly winds were blowing. The barometric observations at Minicoy and on board the S. S. *City of Vienna* establish that there was a shallow depression between Minicoy and the adjacent mainland. The chart of the day (Plate VI) shows the position and character of the depression.

The S. S. *Athens* and *City of Vienna* were approaching the central depression—the former advancing in an east-south-east direction towards it and the latter proceeding in the opposite direction towards and across it.

The *following gives the whole of the meteorological information* of the 1st in their logs :—

Name of Vessel.	Hour.	Position.		Barometer Corrected and reduced to sea level and constant gravity.	Wind.		Weather.
		Latitude. N.	Longitude. E.		Direction.	Force.	
		° ′	° ′	Inches.			
S. S. *Athens.*	4 A.M.	...	...	...	Variable	1	Overcast.
	8 A.M.	10 15	70 10	29·88	Do.	2	Do.
	Noon	954	70 34	...	Do.	5	
	4 P.M.	...	...	29·88	Do.	5	Overcast and occasional squalls.
	8 P.M.	...	...	...	Do.	5	Overcast with fresh variable winds. Heavy thunder and slight confused sea.
	9 P.M.	...	...	...	Do.	...	Fierce squalls and downpour of rain. Heavy thunder and lightning.
	9-40 P.M.	...	...	...	Do.	...	Thick heavy rain.
	Midnight.	...	...	...	Do.	5	Squalls with incessant rain.
S. S. *City of Vienna.*	4 A.M.	...	...	...	W.	3	Overcast; light rain and passing squalls.
	8 A.M.	...	...	29·80 ?	S.	3	Ditto ditto.
	Noon	7 6	75 25	29·89 ?	Variable	2	Cloudy sky; passing squalls and slight sea.
	4 P.M.	...	...	29·93 ?	E.	...	Ditto ditto.
	8 P.M.	...	...	29·89 ?	E.	...	Passing squalls with incessant rain.
	Midnight.	...	...	29·91 ?	Variable	3	Ditto ditto.

Special observations at Minicoy on 1st November.

The observer at Minicoy commenced to take observations at short intervals from noon of the 1st, when the weather appeared to him suggestive of the approach of a storm. His observations show that pressure was very steady throughout the whole day, but that very heavy

rain fell, winds were strong from north-east, and sea rough to boisterous throughout the day. The following gives his observations taken during the day —

Hour	Barometer corrected and reduced	Barometer diurnal variation eliminated	Wind direction	Lower Clouds		State of Sea	Weather
				Kind	Direction		
	Inches	Inches					
Noon	29 756	29 744	N E	Pk	N E	Very rough	Thunderstorm with rain
0-30 P M	732	730	N E	Do	N E	Do	Continued rain
1 ,,	725	734	N E	Do.	N E	Boisterous	Ditto
1 30 ,,	687	709	E N E	Do	N E	Do	Ditto
2 ,,	693	725	E N E	Pc	N E.	Do	Ditto
2 30 ,,	679	718	N E	Do	N E	Rough	Ditto
3 5 ,,	675	721	N N E	Pc K	N E	Do	Drizzling
3-30 ,,	675	722	N E	Do	N E	Do	Continued rain
4 ,	·693	743	N N E	Do	N E	Do	Drizzling
4 30 ,,	700	745	N N E	Pc	N E	Do	Ditto
5 ,,	712	752	N N E	Do	N E	Do	Ditto
5 30 ,,	723	755	N E	Do	N E	Do	Ditto
6 ,,	730	752	N E	Do	N E	Do	Overcast and squally
6-30 ,	740	754	N E	Do	N E	Do	Drizzling
8 ,,	·758	745	N E	Do	N E	Do	Ditto
10 ,,	766	734	N N E	Pk	N E	Very rough	Continued rain

5 59 inches of rain fell between noon of the 31st and noon of the 1st The mean velocity of the wind, as registered by the Beckley's anemograph, used in connection with the tidal observations, was 33 miles per hour between 9 A M and 6 P M

In the preceding table the second column gives the observations at Minicoy corrected for temperature and reduced to sea level and constant gravity In the third column the pressure data are given after the effect of the ordinary diurnal oscillation has been eliminated, so that the figures in that column represent the changes due to the abnormal features of the weather during the day. These figures show that pressure was fairly steady throughout the day with a slight tendency to rise, and hence apparently indicate that the cyclonic storm was in the initial stage and was developing very slowly The only feature of importance was the continuous heavy rainfall in the area of disturbance.

The whole of the information hence establishes that winds were variable and light both in the eastern and western quadrants of the depression They also indicate that weather became more squally during the day, and that very heavy rain was falling at Minicoy and over the neighbouring sea area, and that the area of heavy rainfall increased considerably during the day, more especially in the eastern quadrant. The centre of the depression, so far as can be judged, was between Minicoy and the 8 A M. position of the *City of Vienna*, and probably in about Lat $7\frac{1}{2}°$ or 8° N and Long 74° E

Probable position of centre of depression and storm

2nd November. (Chart 2, Plate VI).

November 2nd.—Pressure gave way over the whole of India on the 1st, but the fall was slightly greater at the Malabar Coast stations than in the interior of the Peninsula. The depression off the Malabar Coast hence increased in intensity, as is shown by the following 8 A.M. observations :—

Station.	Barometer.			Wind.			Temperature.				Cloud proportion.	Rainfall in past 24 hours.	Weather.
	Actual reduced to sea-level and constant gravity.	Change since 8 A.M. previous day.	Variation from normal.	Direction.	Average Velocity in miles per hour.	Percentage ratio of actual to normal velocity.	Maximum.	Variation from normal.	Minimum.	Variation from normal.			
	"	"	"										
Colombo . .	29·876	—·054	+·023	S.-W.	10	167	84 5	?	75·0	?	10	0·22	Sea slight.
Trivandrum . .	29·877	—·023	?	N.-N.-W.	4	?	82·5		65·0	?	10	0·81	Showery.
Cochin . . .	29 859	—·040	+·016	Calm.	2	?	87·2	+1·6	74·7	+0·6	10	0·30	
Mangalore . .	29·852	—·064	+·007	E.	2	?	93·8	+7·7	76·4	+2 0	5	*Nil.*	
Minicoy . .	29·753	—·090	?	N.-E.	14	?	80·1	?	76·4	?	10	5·53	Drizzling.

General character of weather in the Arabian Sea.

These observations show that the barometer had fallen briskly, and winds strengthened slightly at Minicoy. Winds were, as on the 1st light and somewhat irregular in direction on the Malabar Coast.

The following gives 8 A.M. observations taken on board vessels in the south-east of the Arabian Sea :—

Name of Vessel.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		Weather.
	Latitude. N.	Longitude. E.	Actual.	Corrected and reduced to sea level and constant gravity.	Direction.	Force.	
	° ′	° ′	Inches.	Inches.			
S. S. *Fultala*	5 53	78 59	30·10	29·85	W.-S.-W.	5	Thick weather with continous rain.
S. S. *Athens*	8 55	72 50	30·06	29·88 ?	Variable.	4	Squally with occasional showers.
S. S. *Drummond* . .	9 13	67 19	30·15	29·85	E.-N.-E.	4	Fine and clear.
S. S. *Manora* . . .	10 40	65 25	29·95	29·87	N.-E.	4	Passing clouds.
S. S. *Chindwara* . .	At Cali	cut.	29·88	29·85	E.-N.-E.	2	Cloudy.
S. S. *Bohemia* . .	12 25	57 18	30 10	29·99	E.-N.-E.	3	Fine.
S. S. *Inchlonga* . .	16 8	73 7	29 76	29·88	N.-E.	2	Fine.
S. S. *Deccan* . . .	(16 19½ No	71 23) on.	(29·94) Noon.	29·88	N.-N.-E.	5	Fine.

These vessels all experienced light to moderate north-east winds and fine weather with the one exception of the S. S. *Athens*. That vessel was about 60 miles due north of Minicoy at 8 A.M. Her barometer (uncorrected) was apparently steady, but its readings are of very doubtful validity. She had squally rainy weather and fresh variable winds at that hour. The wind observations of that vessel and at the Malabar Coast stations clearly indicate that if a cyclonic circulation had been initiated in the depression, it was as yet confined to a small central area.

The following gives the whole of the weather information for the 2nd contained in her log —

Observations of storm taken on board S S *Athens* on 2nd November

Hour	Position		Barometer		Wind		Weather
	Lat N	Long E	Actual	Corrected	Direction	Force	
	° ′	° ′	Inches	Inches			
4 A M					Variable	5	Overcast with occasional rain squalls
8 A M	8 55	72 50	30 06	29 88	Do	5	Moderate confused sea
Noon	8 49	73 15			Do	5	Heavy showers of rain
4 P M					Do	5	Heavy showers of rain and confused sea
8 P M			30 06	29 88	Do	5	Same weather continued
Midnight					Do	5	Ditto ditto

The S S. *Athens* was passing through the northern quadrant of the depression during the day, and was probably not more than 40 miles distant from the centre when nearest to it

The observer at the tidal observatory, Minicoy, took observations at short intervals during the day The following gives these observations tabulated in the same form as those of the preceding day —

Storm observations taken at Minicoy on 2nd November

Hour	Barometer corrected and reduced	Barometer diurnal variation eliminated	Wind direction	Lower Clouds		State of Sea	Weather
				Kind	Direction		
	Inches	Inches					
0-5 A M	29 698	29 683	N E	P K	N E	Very rough	Drizzling
7 ,,	724	706	N N E	Pc K	N E	Boisterous	Squally and overcast
8 ,,	745	710	N E	Pc	N E	Do	Drizzling
9 ,,	754	709	N E	P Ck	N N E	Slight	Ditto
10 ,,	743	7 0	E N E	P Ck	N E	Do	Overcast
10-30 ,,	723	688	N E	Pc	N E	Do	Ditto
11 ,,	711	683	N E	Pc	N E	Rough	Drizzling
11 30 ,,	684	663	N E	Pk	N E	Do	Continued rain
12 ,,	668	657	N E	Pk	N E	Do	Overcast
1 P M	628	638	N E	Pk	N E	Very rough	Continued rain
2 ,,	605	636	N E	Pk	N E	Do	Drizzling
3 ,,	593	638	N E	Pk	N F	Do	Continued rain
4 ,,	604	653	N N -E	Pk	N E	Slight	Squally with partial clouds.
5 ,,	·59›	617	N E	K Ck	N N E	Do	Drizzling
6 ,,	616	639	N N E	K Ck	N N E	Do	Overcast.
8 ,,	648	636	N N E	P Ck	N N E	Do	Drizzling
10 ,,	664	633	N N E	Pc	N N E	Do	Lightning and continued rain
Midnight	545	531	N E	Pc	N N E	Very rough	Ditto ditto

These observations show that pressure decreased slowly but steadily throughout the day up to 10 P M, when it began to fall very rapidly It fell rapidly until shortly after midnight, at which hour it was two-tenths of an inch lower than at 10 P M of the preceding day. Winds blew strongly from north-east during the day, their velocity averaging slightly above 30 miles per hour.

Inferences from observations.

The observations hence establish that a depression had formed between Minicoy and the Malabar Coast during the preceding 48 hours, and that it had intensified during the afternoon of the 2nd. Pressure at the centre was probably at least a third of an inch below the normal. The centre at midnight was probably advancing very slowly in a west by north direction and approaching Minicoy. It is not, however, possible to give its position exactly or determine its rate of motion from the available observations.

3rd November. (Chart 1., Plate VII).

November 3rd.—Pressure had increased slightly during the previous 24 hours in the Indian land area. The observations indicate that a shallow and somewhat extensive depression lay off the west coast of India from Trivandrum to Karwar. The following gives 8 A.M. observations at the coast stations in this area :—

STATION.	BAROMETER.			WIND.		Cloud.	Rainfall in past 24 hours.	WEATHER.
	8 A.M.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity in miles per hour.			
	"	"	"					
Colombo . .	29·860	—·016	+·004	E.	7	8	1·23	Showery.
Trivandrum .	29·849	—·028	?	E.-N.-E.	4	9	0·41	
Cochin . .	29·843	—·016	—·001	S.-E.	2	10	1·85	
Mangalore .	29 838	—·014	—·009	E.-N.-E.	2	4	*Nil.*	
Calicut . .	29·821	—·025	—·029	E.	4	8	0·32	
Karwar . .	29·844	—·032	+·007	N.-E.	2	0	*Nil.*	
Minicoy . .	29·711	—·034	?	S.-E.	?	?	?	

Observations at Minicoy on 3rd November.

These observations indicate that the central depression was to the west of Minicoy. The following observations were taken at Minicoy during the day :—

HOUR.	Barometer corrected and reduced.	Barometer diurnal variation eliminated.	Wind direction.	LOWER CLOUDS		State of Sea.	WEATHER.
				Kind.	Direction.		
	Inches.	Inches.					
4 A.M.	29·541	29·573	S.-S.-E	P. K.	S.-E.	Very rough	Sky clear towards N.-E.
6 "	·640	·645	S.-S.-E.	P. K.	S.-E.	Slight	Squally.
7 "	·686	·668	S.-E.	P. K.	S.-E.	Do.	Ditto.
8 "	·711	·676	S.-E.	Pc.	S.-E.	Do.	Ditto.
9 "	·728	·682	S.-E.	Pc.	S.-E.	Do.	Drizzling.
10 "	·728	·685	S.-E.	Pc. K.	S.-E.	Do.	Ditto.
11 "	·712	·682	S.-S.-E.	Pc.	S. E.	Do.	Squally.
Noon.	·682	·670	S.-S.-E.	Pc.	S. E.	Do.	Ditto.
1 P.M.	·670	·682	S.-S.-E.	Ck.	S.-S.-E.	Do.	Ditto.
2 "	·665	·695	S.-S.-E.	K.	S.-S.-E.	Do.	Dark, gloomy.
4 "	·647	·696	S.-S.-E.	Pk.	S.-E.	Do.	Drizzling.
6 "	·679	·701	S.-S.-E.	Pk.	S.-E.	Do.	Ditto.
8 "	·701	·688	S.-S.-E.	K.	S.-E.	Do.	Dark, gloomy.
10 "	·747	·716	S.-S.-E.	K.	S.-E.	Do.	Drizzling.

Account of storm as experienced at Minicoy.

These observations show that the storm centre advanced westwards to the north of Minicoy, and was nearest to that island between midnight and 4 A.M. The following brief account of the storm was sent by the observer :—" A storm of rain accompanied with fresh

winds, set in at 9 A M on the 1st instant The wind increased to a gale from noon to 2 P M, and caused still more rain, which flooded to a depth of 3 to 4 feet the lower parts of the island where almost all the plantations of the islanders are situated After 2 P M, the wind was very squally, blowing from north north-east, north-east, and east north-east on the evening of the 1st and the 2nd, but changed its direction at 1-30 A M on the 3rd instant to south south-east and south-east The velocity of wind from 1 A M and 2 A M was 50 miles and from 2 A M to 3 A M 58 miles This storm has caused great loss to the islanders Many trees fell, and many roofs of houses were blown down, but no lives were lost

"Many old inhabitants of this island say that they never before experienced a storm so violent, destructive and long lived as this one on this island About thirty-five or forty years ago they had a storm, which lasted only for twelve or thirteen hours, and was not severe"

Inference from Minicoy observations

These remarks indicate that the storm centre was nearest Minicoy about 1-30 A M of the 3rd, when the wind shifted suddenly from east-north-east to south-south-east The strongest winds were those from south south east to south-east The central depression was almost certainly not more than three or four-tenths of an inch in amount. The centre was nearest to Minicoy and probably not more than 10 or 20 miles to the north at 1-30 A M of the 3rd As the island of Minicoy is in Lat 8° 13′ N and Long 73° 30′ E, the position of the centre at that hour was about Lat 8° 20′ N and Long 73° 30′ E The concluding remark indicates that the storm was very exceptional and that cyclonic storms are probably of rare occurrence at Minicoy

Weather in the Arabian Sea on 3rd November

The following gives 8 A M meteorological data of the south-east of the Arabian Sea for this day, extracted from the logs of vessels —

Name of Vessel	Position		Barometer		Wind		State of Sea	Weather
	Lat N	Long E	Actual	Corrected	Direction	Force		
	° ′	° ′	Inches	Inches				
S. S *Ursa*	6 43	7 89			E	..		Cloudy
S S *Athens*	(noon) 8 5	75 50	30 06	29 88	Variable	4		Squalls with occasional showers of rain.
S S *Drummond*	8 27	71 21	30 07	29 77	N W	..		Heavy rain and thick weather
S S *Manora*	9 48	70 14	29 88	29 80	Variable	..	...	Wind very unsteady Rain squalls; fine at intervals.
S. S *Bohemia*	11 28	60 47	30·05	29 94	E. N E	2	..	Cloudy
S. S *Inchlonga*	13 16	74 27			S. E.	4	...	Do.
S S *Deccan*	13 17	69 46	29 89	29 83	N	5	Moderate	Fine

The data contained in the preceding table indicate that weather was squally and showery in the Arabian Sea off the Travancore and West Ceylon coasts. The winds, as observed on board the S. S. *Manora* and *Athens* in this part of the Arabian Sea, were variable and moderate in force, thus indicating that the storm was of small extent, and probably of moderate intensity. The only vessel near the storm area during the day was the S S. *Drummond*. The following gives the whole of the available information contained in her log :—

Hour.	Position.		Barometer.		Wind.		State of Sea.	Weather.
	Lat. N.	Long. E.	Actual.	Reduced.	Direction.	Force.		
	° ′	° ′	Inche	nches.				
4 A.M. . .	...	...	30·07	29·77	N.-E.	2	...	Heavy rain and lightning.
8 " . .	8 22	71 21	.07	·77	N.-W.	...	...	Heavy rain and thick. weather.
Noon . .	8 14	72 0	·07	·77	W.	5	...	Do. do.
4 P. M. . .	...	...	29·98	·68	S.-W.	5	...	Showery.
8 " . .	...	...	30·05	·75	S.-S.-W.	5	...	Weather clearing.
Midnight . .	...	...	·08	·78	S.-S.-E.	4	Moderate.	Fine and clear.

Weather conditions off the Malabar and Konkan coasts from 3rd to 8th.

During the next five days, *i.e.*, from the 3rd to the 8th, weather was slightly disturbed and squally off the Malabar and Konkan coasts. How far this was a residual effect of the storm described in the preceding paragraph, or how far it was due to the increased strength of the south-west winds at the entrance to the Bay, and hence also probably in the Arabian Sea to the west of Ceylon, can only be conjectured in the absence of complete meteorological data. The latter, however, appears to be the most probable cause.

The following summary of the Minicoy observations indicates clearly the character of the weather during this period off the Malabar Coast :—

Date.	Barometer.		Wind.		Cloud.	Rainfall.
	8 A. M.	Change in past 24 hours.	Direction 8 A.M.	Average velocity of 24 hours preceding 8 A. M.	8 A. M.	24 hours preceding 8 A.M.
	Inches.	Inch.				
3rd	29·720	-- ·027	S.-E.	33	8	4·01
4th	·765	+ ·045	E.-S.-E.	14	8	0·32
5th	·794	+ ·029	S.	28	4	1·25
6th	·830	+ ·036	S.-W.	15	4	0·20
7th	·866	+ ·036	S.-W.	14	2	*Nil.*
8th	·904	+ ·038	S.-W.	4	3	*Nil.*
9th	·910	+ ·008	N.	2	3	*Nil.*

These observations establish that pressure increased slowly and steadily from the 3rd to the 9th, and that strong southerly winds pre-

vailed from the 3rd until the 7th. Winds fell off very rapidly in strength on the 8th, and shifted from south-west on that day to north on the 9th Northerly winds were recorded on 19 days out of the remaining 22 days of the month. These observations hence indicate that north-east monsoon conditions were established as far south as Minicoy (Lat. 8° N.) on and from the 9th of November.

Weather was showery during this interval in Malabar and Canara The following gives a return of the daily rainfall from the 3rd to the 9th, recorded at the meteorological observatories in these coast districts :—

Rainfall data of west coast stations from the 3rd to 9th November

Station.	Amount of rainfall on—						
	3rd	4th	5th	6th	7th	8th.	9th
	Inches	Inches	Inches	Inches.	Inches	Inches	Inches
Colombo	1·23	0 02	*Nil*	*Nil*	*Nil*	*Nil*	1 53
Trivandrum	0 41	*Nil*	0 03	0 07	0 23	*Nil*	0 22
Cochin	1 85	*Nil*	*Nil*	0 03	*Nil*	*Nil*	*Nil*
Mangalore	*Nil*	*Nil*	*Nil*	0 10	0 33	0 03	0 14
Calicut	0 32	*Nil*	*Nil*	1 91	0 28	*Nil.*	*Nil*
Karwar	*Nil*	*Nil*	*Nil*	*Nil*	0 09	0 02	*Nil.*
Mormugao	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*
Ratnagiri	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*

The rainfall data shew that the showery weather extended as far north as Karwar, and lasted until the 9th, after which fine dry weather set in over the Konkan and North Canara districts. Occasional showers continued to be received in Malabar and Travancore

The following table gives the cloud amount as registered at 8 A M at the observing stations on the west coast. It shews clearly that weather was fine with partial cloud throughout this period —

Cloud data of west coast stations from the 3rd to 9th November

Station.	Amount of cloud at 8 A M of—						
	3rd	4th.	5th	6th	7th	8th	9th
Colombo	8	5	5	4	1	0	3
Trivandrum	9	3	9	8	0	0	4
Cochin	10	6	3	0	0	0	0
Mangalore	4	0	6	10	10	5	7
Calicut	8	2	9	10	0	10	6
Karwar	0	0	1	4	8	4	2
Mormugao	0	0	3	4	10	3	1
Ratnagiri	0	0	3	4	1	4	1

The wind data furnish similar evidence of the fact that, although the coast observations indicated the existence of a shallow depression (as on the 2nd and 3rd), weather was fine with partial cloud, light to moderate winds and occasional showers, but was not, according to the ordinary acceptation of the word, stormy.

The following gives the probable positions of the centre of the storm from the 1st to the 3rd:—

Date.	Hour.	Position of Centre.		Distance passed over.	Average hourly velocity.
		Latitude N.	Longitude E.		
1st	8 A.M.	8° 0′	73°50′	...	...
2nd	,,	8° 0′	73°20′	43	1·8
3rd	,,	8°15′	72°45′	30	1·2

The storm hence drifted very slowly westwards during that period at an average rate of 2 miles per hour, and passed on the 3rd into an area for which there are no data. It probably continued to advance in the same direction for some days afterwards slowly filling up whilst advancing westwards. The southerly humid winds in the eastern quadrant extended northwards along the Malabar and Konkan coasts on the 4th and 5th and gave showery weather and thunderstorms. The Minicoy observations appear to indicate that these conditions continued until the 6th, by which date the depression had probably filled up. The southerly winds then fell off rapidly in strength on the 7th and 8th and were replaced by northerly winds on the 9th, on which day normal north-east monsoon conditions obtained over the Arabian Sea.

CHAPTER IV.

PORT BLAIR CYCLONE OF 31ST OCTOBER TO THE 7TH NOVEMBER.

The conditions and circumstances of the origin of the cyclone under discussion are as yet unknown It crossed the Gulf of Siam on the 30th and 31st of October, and it appears probable that it originated in that sea area

Origin of cyclone in the Gulf of Siam.

Dr. Doberck, Director of the Hong Kong Observatory, in reply to an enquiry, states that no bad weather was reported in the China Sea from the 23rd of September to the 12th of November. He also adds that he has come across only one case of a small cyclone which originated in the Gulf of Siam and advanced westwards, probably across the Malayan Peninsula. Fairly complete information has been obtained of the character and path of the storm across the Gulf of Siam and the Malayan Peninsula.

Storm originated in Gulf of Siam and not in China Sea

The following account of the storm extracted from the *Siam Free Press* was forwarded by the Port Officer, Rangoon —

"A cyclone swept over the Gulf of Siam on the 30th and 31st of October. It passed in its course over the island of Koh Samuie at the entrance to the Bight of Bandon and entirely destroyed the towns of Bandon and Chaiya, the latter place being one of the largest towns on the Gulf. Five thousand six hundred and sixty houses were blown down, trees between 4 or 6 feet in diameter were uprooted or snapped in two by the force of the wind, and there was a heavy loss of life. The whole country in the track of the storm is a complete desert without a tree or house standing. There also appears to have been heavy loss at sea, as the S S *Cape Clear,* bound from Champon to Chaiya, passed large quantities of wreckage, such as junks cargo, and dead bodies The S S. *Rainbow* capsized at Koh Samuie, and the officers and crew of 30 men and 3 passengers were all lost, with the exception of 6 natives. The storm lasted about six hours, and is said to be one of the most destructive which has ever visited the Gulf of Siam"

Account of storm in the Gulf of Siam and Lower Siam in Siam Free Press.

The following account of the storm was received from the Bangkok Foreign Office through A A. Apcar, Esq, Consul General for Siam at Calcutta, and is stated to have been drawn up from the reports of the Governors of Chaiya and Renong —

Account of storm in Lower Siam by the Bangkok Foreign Office

"It appears that the storm broke out in Chaiya on the 31st October at 11 P M, and lasted with unabated force up to 3 A M on the 1st November. The land was covered with water up to 7 or 8 feet and 387 religious buildings, and 4,238 other [illegible] more [illegible] the se [illegible] timber.

"The report of the Governor of Renong states that the storm commenced on the 1st November at 1 A M Rain was falling and the wind was blowing from the north-east, and the sky presented a fiery red appearance at sunset of the 31st. Many trees were uprooted on the hills surrounding Renong and the water to the

north side of the Kapo Creek was dry for about six hours. The storm raged throughout the province up to about 7A.M., and during that time severe damage was done to some parts of the palace, and on the court-house on the west side the corrugated-iron roof was blown down.

"In the district of Renong itself 42 houses were blown down and 3 persons were killed, and so in other places; the greatest damage was done in the village of Kapo, where 122 houses were blown down and 5 houses destroyed through the water rushing in. Work had to be stopped at 31 mines, and roads were destroyed inland throughout the district. On the surrounding islands the storm was felt from the Island Koh Sang and Song (British territory) to Koh Hartsai Yas, Koh Xang, Koh Phayam, Koh Klang, Koh Bangchak, Koh Klang Kas (Renong), and Koh Rakam (Takuapa) to St. Matthew's Island and Chance Island. Little damage was done to Koh Song and Koh Rakam. The storm was not felt from Koh Phi Pakuam (Renong) following the course of the Kra up to Kraburi."

From the foregoing report it appears that this storm travelled at the rate of 18 miles an hour.

According to the account of the survivors of the S.S. *Rainbow*, which was at anchor about a quarter of a mile to the south-east of the island of Koh Samuie, the weather which had previously been very fine became threatening on the evening of the 31st, and at 10 P.M. the wind freshened rapidly. The captain at 11 P.M. ordered the fires to be lighted. The wind and sea increased very rapidly at this time, and the vessel rolled heavily. Very shortly afterwards (between 11 P.M. and midnight) a heavy squall struck the vessel, when she gave one heavy roll to port, capsized, and sank.

Storm passed over St. Matthew's Island.

The storm centre also appears to have passed over, or very near to, St. Matthew's Island, in the Andaman Sea, Lat. 10° N. and Long 98¼° E., and about 30 miles to the west of the mouth of the Pakshan River, and 100 miles to the west-north-west of Chaiya. The captain of the S. S. *Fitzpatrick*, when passing near the island in the second week of November, noticed that many of the huge trees of that island had been very recently uprooted. Many trees were quite bare of leaves, and the whole of the foliage of the island had the appearance of having been scorched by fire.

The preceding information hence appears to establish conclusively that the storm originated in the Gulf of Siam, probably in about Lat. 9° N. and between Long. 102° to 103° E., and also that it was unique in its origin and its earlier features.

The following gives a brief description of the part of the Malayan Peninsula (Lower Siam) traversed by the storm :—

Brief description of the portion of the Malayan Peninsula included in

The long and narrow peninsula, which stretches southwards between the Andaman Sea and Straits of Malacca on the west and the Gulf of Siam and South China Sea on the east, extends from Lat. 14° N. to Lat. 1° N. It is divided into two portions by the Isthmus of Kra (in Lat. 10° N.). The southern portion is usually called the Malayan Peninsula. Both portions are more or less mountainous. The mountains in each portion consist of a central range, which runs

approximately north and south, and forms the backbone of the country, with numerous lateral offshoots The Isthmus of Kra is a well marked break in this central range of hills, and is stated to be in its highest part not more than 100 feet high The hills also immediately to the north and south of the isthmus appear to occur chiefly as isolated elevations, and not as continuous ranges The isthmus is so low that it has been proposed to construct a canal across it and thus shorten very considerably the sea passage between Calcutta and the Burma ports and China but the estimated cost is prohibitive The part of the peninsula crossed by the storm hence appears to consist of comparatively low ground, interrupted by isolated hills of moderate elevation The east coast of the peninsula, to the south of the Isthmus of Kra curves through south to east, and encloses a small gulf known as the Bight of Bandon The town of Bandon is on the south coast of this Bight in Lat 8° 55 N and Long 99°3 8 E and the town of Chaiya on the west coast of the Bight is in Lat 9°24 N and Long 99°36 E The town of Renong is on the opposite side of the peninsula near the entrance to the Pakshan River, which forms the boundary between Tenasserim and the province of Renong in Siam It is in Lat 9°56 N, Long 98°42 E

the track of the storm (Plate XV)

The course of the cyclone hence directed it to that part of the peninsula where the land surface offered the least resistance to its passage

Summary of chief facts respecting track and motion of the storm in the Gulf of Siam and Lower Siam

The typhoon or cyclone at this stage was one of great intensity, and accompanied with violent and destructive hurricane winds when crossing the Malayan Peninsula The duration of the storm is given by the Siam Foreign Office as four hours, and is probably that of the time it took the inner storm area (in which winds were of force 9 to 12) to pass over places in the track of the centre. As the rate of advance of the storm at this stage was nearly 19 miles an hour, the diameter of the typhoon proper or inner storm area of the cyclonic disturbance along the direction of its advance was probably between 70 and 80 miles This gives the diameter of the storm area in an east and west direction

The account of the storm obtained from the Bangkok Foreign Office shows that the centre very probably passed over the town of Chaiya and the village of Kapu The belt of destructive winds is not very clearly indicated by that statement. It apparently included Renong to the north of the centre, but did not extend so far south as the town of Tapuapa. This shows that the breadth of the area of destructive winds just before passing out of the Malayan Peninsula was less than 60 miles It is hence probable that the shape of the storm area as defined either by the isobars or the area of destructive winds was oval or elliptical, the greatest diameter of which was approximately in the direction of the track of the centre. The storm area was hence probably at this stage, as it was undoubtedly when crossing the Andaman Sea and Bay of Bengal, elliptical shaped, with its longest

diameter in the direction of advance, the longest diameter being about 80 miles and the shortest 60 miles.

The preceding information also shows clearly that the storm advanced across the Gulf of Siam in a westerly or west-north-westerly direction on the 30th and 31st of October, and reached the east coast of the Malayan Peninsula in the districts of Chaiya and Bandon in Lower Siam about midnight of the 31st. The centre passed over the town of Chaiya about 2 A.M. of the 1st. It reached Port Blair about 2-30 A.M. of the 2nd. Assuming these data as approximately exact, the storm during this period of 24½ hours travelled about 460 miles with an average velocity of between 18½ and 19 miles per hour.

The following are the more important inferences respecting the track and character of the storm at this stage based upon the preceding statement :—

(1) The centre passed to the south of Koh Samuie (in Lat. 9° 30′ N. and Long. 100° E.) at midnight. The S.S. *Rainbow*, it is stated, had easterly winds before she sank.

(2) The centre passed over Chaiya (Lat. 9° 12¼′ N. and Long. 99° 36′ E.) about 1-30 A.M. or 2 A.M. The storm appears to have raised a considerable storm wave, as it is stated that the land was covered with water to a depth of 7 or 8 feet, and that 76 persons died through the water rushing up into the houses. The destruction of life and property in Chaiya was probably due in large part to the storm wave.

(3) The storm centre passed nearest to Renong about 3 A.M., and a little to the south of that town. It probably passed centrically over the village of Kapu in the Renong District.

(4) The storm centre probably also advanced a little to the south of St. Matthew's Island.

(5) The direction of advance of the storm at this stage was west-north-west or more exactly N. 69° W.

(6) The rate of advance of the storm at this stage was somewhat greater than 18 miles per hour, but probably did not exceed 20 miles per hour.

(7) The inner storm area in which winds were of force 9 or 10 to 12 was probably elliptical-shaped, and the longest diameter, running approximately east and west, was about 80 miles in length, and the shortest (lying north and south) 60 miles in length.

It is very probable that the storm was an example of the class

known as typhoons in the China Sea It was quickly generated, the conditions being favourable to that rapid accumulation of action in a comparatively small space which invariably accompanies concentrated torrential rain

November 1st —The storm under discussion, the origin of which has been traced to the Gulf of Siam, entered the Indian area early on the morning of the 1st, and formed the chief feature of the meteo rology of the weather in India during the next week

The abnormal pressure conditions prevailing in the Indian area at this time have been fully stated in a previous section Pressure was very considerably above the normal on the 31st, but was beginning to give way over nearly the whole of India The changes were however small and the pressure distribution in the Indian land area on the morning of the 1st was similar to that of the 31st October The chief features were—

Chief features of meteorology of India on 1st November (Plate VIII)

(1) Pressure was in excess over the whole of India by amounts averaging very nearly a tenth of an inch

(2) Pressure was most largely in excess in the area stretching from the South Deccan and Circars to Bihar and the North-Western Provinces That area was hence one of local excess of pressure

(3) The excess of pressure was least in amount in Lower Burma and the south of the Bay and off the Malabar coast The cyclone was entering this area of local deficiency of pressure in the Andaman Sea, and was hence intensifying the deficiency

Pressure was very uniform over North Western and Central India Steepish gradients obtained in the peninsula and the north of the Bay In the Bay (excluding the Andaman Sea) winds were slightly stronger in the northern half of the Bay than in the southern half They ranged in force from 4 in the north of the Bay to 2 and 3 in the centre and south of the Bay

The mean or normal force of the winds at the entrance to the Bay in November is 2 5 and winds are variable in direction but south-west winds slightly predominate In the Andaman Sea they are of average force 3 and in the north-west angle of the Bay they average slightly less than 2 They hence usually increase in force south westwards from the head of the Bay and westwards from the Andaman Sea to the Coromandel and East Ceylon coasts (*i e*, from Lat 8° N to 16° N), where they slightly exceed 4 in force

Winds on the 1st were hence strongest in that part of the Bay where they are usually weakest in November, and *vice versâ* They were, however, in general accordance with the abnormal pressure distribution of the day

It may also be noted that the changes of pressure during the previous 24 hours in the Indian area were everywhere small in amount, and left the distribution of pressure and its variations from the normal unchanged.

The following table gives data :—

Province.	Pressure, Change since 8 A.M. of previous day.	Pressure, Variation from normal.	Pressure anomaly.
	Inch.	Inch.	Inch.
Burma	−·016	+·062	−·042
Bengal and Assam	−·006	+·119	+·015
North-Western Provinces	−·004	+·126	+·022
Punjab	−·013	+·110	+·006
Bombay	+·001	+·087	−·017
Central Provinces	−·013	+·122	+·018
Guzerat and Central India	0	+·110	+·006
Sind and Rajputana	0	+·109	+·005
Madras	−·009	+·090	−·014

Assuming that the storm centre passed over Chaiya between 1-30 A.M. and 2 A.M., and that it was travelling on a straight course with an average velocity of 18½ miles per hour, its position at 8 A.M. of the 1st would be in Lat. 9° 50′ N. and Long. 97° 30′ E. This agrees satisfactorily with the land and marine 8 A.M. meteorological data of the day.

Weather in the Bay of Bengal.

The following gives a summary of the observations taken on board vessels in the Bay of Bengal at 8 A.M. :—

Ship.	Position. Latitude N.	Position. Longitude E.	Barometer. Actual.	Barometer. Corrected and reduced to sea-level and constant gravity.	Wind Direction.	Wind Force.	State of sea.	Weather.
	° ′	° ′	Inches.	Inches.				
S. *Glenricht*	4 30	92 15	...	...	W.	2	...	Fine.
S. *Eurydice*	4 45	92 40	...	...	S.-W.	4	...	Squally.
S. *Loudon Hill*	5 32	93 18	30·20	29·92	Calm	0	...	Calms and faint variable airs.
S.S. *Stella*	5 40	83 0	30·02	29·93	Variable	...	...	Cloudy.
S.S. *Pundua*	6 56	92 39	30·09	29·92	Calm	0	...	Cloudy.
S. *Joseph*	6 5	93 0	30·02 ?	29·92	Variable	1	Sea like glass.	Light airs and calms; squally appearance in evening.
S. *Bann*	11 13	90 25	...	...	N.-E.	4	...	Squally.

Ship	Position		Barometer		Wind		State of sea	Weather
	Latitude N	Longitude E	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force		
	° ′	° ′	Inches	Inches				
S *Lena*	11 12	89 45			Variable	1		Cloudy Squally during part of day
S S *Lincolnshire*	11 2	84 19	30 00	29 90	N E	4	Light head	Fine and clear
S S *Waverley*	Masulipatam				N E	5	Moderate	Clear
S S *Colaba*	18 05	91 28	30 01	29 94	N N E	2		Fine.
S *Anne Main*	19 15	90 30	29 92	29 98	N E by N	4	Smooth	Fine and clear
S S *Sirsa*	19 35	86 38	30 11	30 00	N by E	4		Fine Light to moderate breeze during day
S S *Ganges*	19 40	86 30	30 13	29 99	N E	4		Fine and clear
S S *Tasmania*	20 40	87 40	30 13	30 00	N E	2		Fine
S *Charles Dickens*	20 53	88 07	29 87	30 00	N E	3 to 4		
S S *Pallamcotta*	21 15	88 30	30 15	30 01	N	3		Fine and clear
F L V *Canopus*	Intermediate Station				N E	4	Moderate swell from south	Clear
S S *Arratoon Apcar*	Calcutta				N E	2		Fine

The preceding data show that winds were even lighter and more variable at the entrance to the Bay than is usual in November

The S *Eurydice* in Lat 4° 45′ N and Long 92° 40′ E had moderate south west winds and occasional squalls Five vessels in addition to the S. *Eurydice* were between Lat 4° N and 8° N All had light airs and calms in the morning with a smooth sea Fine clear weather obtained over the remainder of the Bay Winds were somewhat stronger than their mean force in November, and ranged from 2 and 3 at the head of the Bay to 4 and 5 on the Coromandel and Madras coasts It has already been stated that the storm entered the Andaman Sea very early on the morning of the 1st, and that the centre passed to the south of St Matthew's Island between 4 and 5 A M The following observations taken at the

Weather in the Andaman Sea on 1st November.

nearest land observatories show to what extent the storm was influencing the meteorology of the Indian area at 8 A.M. of the 1st—

Station.	Barometer. Actual reduced to sea-level and constant gravity.	Barometer. Change since 8 A.M. previous day.	Barometer. Variation from normal.	Wind. Direction.	Wind. Average velocity in miles per hour.	Wind. Percentage ratio of actual to normal velocity.	Temperature during previous 24 hours. Maximum.	Temperature. Variation from normal.	Temperature. Minimum.	Temperature. Variation from normal.	Cloud proportion.	Rainfall in past 24 hours.
	"	"	"				°		°			
Mergui	29·889	—·039	?	N.-N.-W.	2	001	88·2	?	67·7	?	10	0·10
Tavoy	·911	—·021	?	Calm	2	?	89·7	?	76·2	?	10	*Nil*
Moulmein	·923	—·039	+0.41	N.-N.-W.	3	?	91·5	+3·4	77·8	+4·8	1	*Nil*
Diamond Island.	·918	—·032	+·035	N.-N.-E.	5	63	89·3	+2·91	74·5	—1·9	7	*Nil*
Port Blair	·863	—·036	?	N.	5	84	89·4	?	78·1	...	8	0·06
Nancowry	·918	—·051	?	Calm	...	...	86·1	...	76·2	...	10	0·05

These observations give no indication of the existence of a cyclone in the Andaman Sea. The barometer had fallen slightly, but was still above the normal of the day. Winds were light, and blowing from some northerly point at all stations, and were generally below their normal strength. These observations show that the storm was of small extent, and that it was not due to the gradual development of a disturbance in the Andaman Sea.

The following gives a statement of 8 A.M. observations taken on board vessels in the Andaman Sea on the 1st:—

Ship.	Position. Latitude N.	Position. Longitude E.	Barometer. Actual.	Barometer. Corrected and reduced to sea-level and constant gravity.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	Inches	Inches.			
S. *Marpesia*	?	?	30·10	29·85	N.-E.	2	Passing showers.
S.S. *Japan*	7 40	98 10	30·09	28·90	W.-N.-W.	4	Overcast; light rain; squally.
S.S. *St. Regulus*	11 28	95 40	...	...	N.-E.	6	Heavy squalls.
S.S. *Nevasa*	14 10	96 45	29·99	29·90	E.-N.-E.	4	*Morning*—fine. *Evening*—wind increased to gale with rain.
S.S. *Chanda*	15 20	95 35	30·16	29·92	Variable	2	Cloudy and fine.
S.S. *Mayo*	Rangoon	Rangoon	29·90	29·93	N.	2	Fine and clear.
S.S. *Shahjahan*	Rangoon	Rangoon	...	...	N.-E.	4	Fine and clear.
S.S. *Patna*	Rangoon	Rangoon	29·88	29·93	N.-E.	1 to 2	Fine.

The weather in the Andaman Sea at 8 A M of the 1st was, judging only from the data given in the two preceding tables, fine, with light to moderate winds Several vessels which were near the Lower Pegu coast during the day had fine clear weather throughout The only vessel which experienced strong winds and squally weather at 8 A M was the S S *St Regulus*

The only vessel which encountered the force of the storm on the 1st was the S *Marpesia* which was proceeding to Rangoon The following gives the whole of the information relating to the storm contained in the abstract of her log forwarded by the Port Officer, Rangoon —

Date and Hour	Barometer uncorrected	Wind		State of sea.	Weather
		Direction	Force		
	Inches				
1st—					
Noon	30 10	N E	2		Passing showers
1 P M					Squally
3 P M			4		Wind suddenly increased at 3 P M, carrying away jib boom and fore top mast head
4 P M	29 95	N E	Hard gale		
6 P M	Falling rapidly		Wind increasing	High	Constant rain
9 P M	29 40		Hurricane		Wind blew away fore and main topsails and fore topmast stay sail
Midnight	29 10	N	Hurricane force		Constant rain
2nd—					
2 A M	29 20	N W	Ditto		
4 A M	29 70	W	Wind moderate		Sky overcast
6 A M	29 80	S W			
8 A M	29 90	S	6		Constant rain
Noon	30 00	S E	4		Sky overcast

The Port Officer, Rangoon, who obtained this information states that it is not a copy of the log as that was not written up in consequence of the mate s leg having been broken during the storm. It is a copy of the Master's notes The position assigned by the Captain to the vessel at noon is Lat 9° 12′ N. and Long 96° 19′ E This is, however, almost certainly wrong, and her position was probably in about Lat 11½° N. to 12° N and Long 94° E No information is given as to her course It is, however, probable that she was proceeding in a north westerly course, and also that she was carried to the west during the afternoon by the winds and currents set up by the storm in the centre of the Andaman Sea She was during the evening of the 1st in the west quadrant, and thence passed into the southern and eastern

Skies were clear and weather fine over the whole of India except in Lower Burma and Southern India, where they were heavily clouded The peninsula south of Lat 15° N received general light to moderate rain. The land observations show that there were two depressions influencing the weather in the Indian area These were (1st) a shallow depression off the Malabar coast, and (2nd) a depression in the centre of the Bay of Bengal, the character of which was only faintly indicated by the land observations

The following gives 8 A M data of the land stations nearest to the storm at that time —

Station	Barometer			Wind			Temperature				Cloud proportion	Rainfall in past 24 hours
	Actual reduced to sea level and constant gravity	Change since 8 A M previous day	Variation from normal	Direction	Average velocity in miles per hour	Percentage ratio of actual to normal velocity	Maximum	Variation from normal	Minimum	Variation from normal		
	"		"				°		°			
Nancowry	29 865	— 053		Calm		?	82 0	?	75 1	?	10	0 44
Port Blair	714	— 149	?	? Wind vane broken	Anemometer broken	?	78 8	?	70·0	?	10	3 90
Diamond Island	838	— 080	— 043	E N.-E	13	163	88 3	+ 1 8	75 0	— 1 3	10	Nil
Masulipatam	922	— 055	+ 071	N N E	6	?	89 5	+ 5 5	73 1	— 1 2	2	Nil

The cyclone passed over Port Blair between 2 and 3 A M of the 1st, and then crossed out from the Andaman Sea into the Bay of Bengal Assuming that its direction and rate were the same on the morning of the 2nd as on the 1st, a supposition which it will be seen is confirmed by the marine data, the centre at 8 A M would be in Lat. 12° 10' N and Long 91° 10' E

Weather in the Bay of Bengal.

The following table gives 8 A.M. data of the Bay of Bengal, extracted from the logs of vessels navigating the Bay at this time :—

Ship.	Position.				Barometer.		Wind.		State of sea.	Weather.
	Latitude N.		Longitude E.		Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	°	′	°	′	Inches.	Inches				
S. *Glenricht* .	5	45	92	20	...	...	W.	3	...	Showery.
S. S. *Stella* .	5	54	86	15	29·96	29·87	N.-W.	4	...	Cloudy. *Evening*—rain, with squalls.
S. S. *City of Vienna.*	6	0	79	20	29·87	29·87	Variable	2	Moderate	Frequent squalls and rain in morning.
S. *Eurydice* .	6	10	92	40	..	...	S.-W.	4	...	Squally; dusky sky. *Morning*—heavy squalls.
S. *Loudon Hill*	6	25	93	15	30·20	29·92	Variable	...	...	Calm and light variable airs. Cloudy with showers in afternoon.
S. S. *Plassey*	7	0	82	0	29·58	29·85	W.-S.-W.	4	...	Cloudy.
S. *Joseph* .	7	45	92	10	29·80 ?	29·86	S.-W.	5	...	Squally; showery. Heavy rain in afternoon.
S. S *Pundua*	8	6	87	58	30·04	29·87	W.	4	...	Cloudy.
I. M. S. *Clive*	Madras				29·94	29·88	N.-E.	4 to 5	N.-E. swell.	
S. *Bann* .	12	10	90	15	...	...	N.-E.byE.	4	...	Very threatening appearance to north. Light unsteady breeze.
S. *Kalakana* .	(13	15	88	33) noon.	29·76	29·86 ?	N.-N.-E.	...	...	......
S. *Lena* .	13	40	89	0	...	...	N.-E.	4	Fresh swell in evening.	Squalls in morning. Heavy rain.
S. S. *Lincolnshire.*	15	15	85	15	29·96	29·87	N.-E.	5	Considerable sea.	......
S. S. *Chanda*	17	45	91	40	30·10	29·88	N.-N.-E.	5	...	Cloudy.
S. S. *Palamcotta.*	18	0	91	25	30·03	29·89	N.-E.	4	...	Fine in morning. Squalls and rain in afternoon and evening.
Barque *Lady Agnes.*	(18	57	87	30) noon.	...	...	N.-E.	6	...	Cloudy.
S. S. *Loodiana*	19	0	86	20	30·05	29·95	N.-W.	4	Smooth .	Fine and clear in morning.
S. *Meanatchy*	Gopalpur.				30·06 ?	...	N.-E.	...	...	} Fine and clear.
S. *Anne Main*	19	50	90	24	29·84	29·91 ?	N.-N.-E.	...	...	Slight rain in evening.
S. S. *Colaba* .	20	34	88	43	30·04	29·97	N.-N.-E.	4	...	} Fine.
S. S. *Ganges*	Near Sandheads.				30·15	30·01	N.	3	...	
F. L. V. *Canopus.*	Intermediate station.				30·01	29·99	N.	4	Slight swell.	
F. L. V. *Star.*	Lower Gasper station.				29·99	29·99	N.-E.	3	Smooth .	Calm in evening.
Waverley .	Near Coconada (5° S.-W.)				...	...	N.-E.	5	...	Clear.

The preceding data show that no change had as yet occurred in the north of the Bay Fine clear weather, with moderate north-east winds, obtained over the whole area to the north of Lat. 18° N Winds were of average force 4·1 as compared with 3 5, the norma force in November The northward extension of squally weather was shown by the fact that the vessels between Lat. 8° N. and 20° N and to the east of Long 88° E had cloudy weather with occasional showers and squalls in the afternoon and evening

Weather in the south of the Bay had changed considerably during the previous 24 hours and was now squally with much rain and with moderate south-west to west winds The mean force of the winds experienced by seven vessels to the south of Lat 8° N in the morning was 3 7, whereas on the morning of the 1st the average force was only 2 0. The data hence show clearly that moderate south-west winds prevailed in the south of the Bay, where on the 1st and preceding days calms and light and variable airs had obtained The weather was also more or less squally, and the squalls increased in severity during the day The data are not sufficient to show clearly how far these winds extended up the south east of the Bay, as there is no information available for the area between Lat. 8° N. and 11° N It is, however, very probable from the rapid changes in the winds and weather that this extension was due to the action of the storm, and that the humid south-west winds of the south of the Bay now extended northwards as far as Lat. 12° N in the south-east of the Bay, and were feeding into the storm. These rapid changes are, it may here be remarked, a strong indication that the storm was one of comparatively low elevation and that the centre of greatest activity was probably not more than 4,000 or 5,000 feet above the sea surface. The intense indraught to the vortex drew into it all the available supplies of aqueous vapour in the lower atmosphere, due not only to evaporation in the Bay area, but also to those of the equatorial belt to the south of the Bay.

The following gives a summary of the 8 A M observations taken on board ships in the Andaman sea on the 2nd — Weather in the Andaman Sea

Name of Vessel.	Position		Barometer		Wind		State of sea	Weather
	Latitude N	Longitude E	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force		
	° ′	° ′	Inches.	Inches.				
S S *Nevasa.*	11 10	96 55	29 77	29 68	N E	4	Moderate	Fine and cloudy. Squalls during day
S S *Japan* .	11 30	95 30	30 06	29 86	E-S E.	5		

Name of Vessel.	Position.		Barometer.		Wind.		State of sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches	Inches.				
S. S. *St. Regulus.*	15 0	94 10	...	...	E.	6	...	Heavy rain all day; squally in afternoon.
S. *Marpesia* .	?	?	...	...	S.	6	...	Constant rain during morning. Weather cleared after mid-day and wind fell off.
S. *Mayo* .	16 20	95 0?	29·89	29·87	N.-E.	2	Smooth	Morning fine, evening squally.

The observations indicate that weather was very squally with strong winds and heavy rain in the centre of the Andaman Sea on the 2nd.

We have now to trace the progress of the cyclone itself on the 2nd.

Observations and account of storm by observer at Port Blair.

The cyclone passed over Port Blair early on the morning of the 2nd. The observer, Mr. Carroll, of the Medical Department, who is the Meteorological Observer at the Port Blair Observatory, took a valuable series of observations during the storm and also supplied information from various sources. The following gives the observations he recorded during the cyclone:—

Hour	Barometer.		Wind.	Rain.	Weather remarks.
	Actual.	Reduced to sea-level and constant gravity.			
	Inches.	Inches.			
1st—					
6 P.M. .	29·916	29·773	E.-N.-E	..	Fine weather.
9 P.M. .	·850	·700	...	...	......
2nd—					
1 A.M. .	·602	·451	N.-E.	0·40	Wind rising and coming in stormy gusts.
2 A.M. .	·404	·254	N.-E.	0·20	Blowing very hard.
3 A.M. .	28·502	28·359	S.	0·50	Calm between 2 and 3 A.M.
4 A.M. .	·680	·538	S.	1·05	Blowing very hard.
5 A.M. .	29.240	29·101	S.	0·80	Very squally.
6 A.M. .	·580	·446	S.-S.-E.	0·15	} Squally.
8 A.M. .	·852	·712	S.-S.-E.	0·20	
10 A.M. .	866	·726	S.-S.-W.	0·06	

The wind-vane was broken between 3 and 4 A.M. and the anemometer between 4 and 5 A.M

The following is Mr. Carroll's account of the storm —

"On the afternoon of the 1st instant, at about 2 o'clock, rain clouds banking up from the east and north east, soon overspread the sky and burst, attended by strong wind After a good shower, registering 0 60 inches of rain, the wind abated, leaving the usual gloomy state of weather experienced on a monsoon day. During this shower I noticed that there was some disturbance in the upper currents of air, for, the lower clouds—though moving chiefly from E.N.E., were very frequently unsettled, seeming to falter, circle and then move on—the wind-vane at that time was oscillating between N and E.N.E However at 4 P M the wind having fallen to all ordinary appearance mischief was not expected. About 1 A M on the 2nd instant the wind rose in fierce gusts from the north This was the first indication of coming trouble The instruments and records of the Tidal Observatory have been destroyed, but the clerk in charge assured me his last barometrical reading at 6 P M on the 1st was 29 916" My barometer registered 29 602" at 1 A M. The mercury continued to fall, at 2 A M it registered 29 404", the wind-vane circling at very great speed, and the wind so strong, apparently from N.E, that I could not force my way up the ladder to the anemometer At this time the shingles from the convict barracks and hospitals were being ripped up by the wind The I M S *Enterprise*, then in harbour, was either being driven or was forcing her way out at the southern entrance of the Ross harbour, and was whistling apparently in distress (for, as it so happened, it was their death signal) She was driven on the rocks when about half-way out, and was a total wreck, losing all but six hands, before daybreak Between 2 and 3 A M. there was a sudden lull, then the wind veered round to southward, and by 3 A M. the cyclone was at its worst The barometer reading was 28 502", and, after a very hard struggle to reach the anemometer a reading was registered as 495+4 9 miles; wind-vane still circling, rain 0 50" Two steam barges, several large lighters, and many boats in the harbour had lost their anchorage, and were at the mercy of the wind and waves. They have all been more or less smashed or otherwise destroyed Trees of great size were ripped up by the roots. Cocoanut trees were broken off at the crowns like mushrooms, areca nut trees snapped like matchwood, and the roofs and sides of nearly every building destroyed At 4 A M the barometer rose to 28 680" Another attempt was then made to reach the anemometer This was accomplished with very great difficulty, and the reading taken at 105+1 4 miles, so that in the hour the wind travelled (505—499 9)+106 4=111 5 miles The wind-vane had been wrenched off. About 15 minutes after leaving the anemometer the cups were wrenched off too, the platform and hand-rail leading to the instruments were broken off

Observations on board the barque "Safir" at Port Blair.

Mr Carroll has also forwarded a series of observations taken on board the Norwegian barque "*Safir*," which was anchored during the storm in the shallow harbour opposite Viper Island (about 4 miles to the west of the Port Blair Observatory). These observations, it will

be seen, differ very largely from those taken by Mr. Carroll. The following are the observations in question :—

Date.	Hour.	Barometer.		Wind.	Weather remarks.
		Actual.	Corrected and reduced to sea-level and constant gravity.		
		Inches.	Inches.		
1st .	6 P.M.	29·70	30·00		
	7 "	29·35	29·65	E.	Squally with rain and thunder.
	8 "	29·20	29·50	N.E.	Ditto ditto.
	9 "	29·00	29·30	N.E.	......
	10 "	28·80	29·10	...	Hurricane (10 P.M. to 2-30 A.M.).
	11 "	28·70	29·00	N.	......
	12 "	28·65	28·95	N.	Thick, heavy rain.
2nd .	1 A.M.	28·60	28·90	N.	......
	2 "	28·50	28·80	N.	Calm from 2-30 to 2-45 A.M.
	3 "	28·50	28·80	S.W.	Hurricane winds.
	4 "	28·80	29·10	S.S.W.	Squally, with heavy rain.
	5 "	29·20	29·50	S.	Wind began to moderate.
	6 "	29·35	29·65	S.	Squally.
	7 "	29·45	29·75	S.	Ditto.
	8 "	29·50	29·80	S.E.	Ditto.
	9 "	29·55	29·85	S.	Ditto.
	12 "	...	..	S.S.	Fine.

The corrections to the barometer have been determined from the statement made by the captain in the extract from his log that his barometer usually stood between 29·52″ and 29·62″ at Port Blair. As the barometer during the preceding fortnight that the "*Safir*" had been in Port Blair Harbour ranged between 29·80″ and 29·95″ (reduced and corrected to sea-level and constant gravity), the correction of the "*Safir*" barometer to reduce her observations at Port Blair to sea-level and constant gravity was hence approximately +·30″.

Comparison of barometric observations at the Port Blair Observatory and on board the barque "*Safir*."

These two accounts agree in the facts that the calm storm centre passed over Port Blair, and that its passage was preceded and followed by hurricane winds. The log of the "*Safir*" defines the calm period more exactly than in Mr. Carroll's account. It states it lasted from 2-30 A.M. to 2-45 A.M. Assuming that the rate of motion at the stage was 18½ miles, this would give a breadth in an easterly and westerly direction of between 4 and 5 miles for the calm area.

The barometric observations taken on board the "*Safir*" and at the Port Blair Observatory during the storm differ to such an extent as to demand special investigation to determine which should be accepted as representing the actual changes of pressure due to the passage of the storm. The barometer at the Port Blair Observatory is a Casella's Fortin's (diameter of tube, ·45 inch) which has been in use for some time, and is a thoroughly reliable instrument. Mr.

Carroll is a very experienced and intelligent observer. The barometer on board the "*Safir*" was an aneroid, and experience has shown that the aneroid barometers on board ships are occasionally most unsatisfactory and untrustworthy instruments. The following gives a comparison of the readings taken at the same hours on board the "*Safir*" and at the Port Blair Observatory, in both cases reduced to sea-level and constant gravity—

Date and hour	Barometric readings at Port Blair Observatory reduced and corrected. (*a*)	Readings on board the "*Safir*" (correction +0 30") (*b*)	Readings on board the "*Safir*" (correction +0 20") (*c*)	Difference of corrected readings (first and second columns) (*b* – *a*)	Difference of corrected readings (first and third columns) (*a*—*c*)
	"	"	"	"	"
1st—					
6 P.M.	29 773	30·00	29·50	+0 227	+0 273
2nd—					
1 A.M.	·451	28 90	28 40	–0 551	+1 051
2 "	·254	80	·30	–0 454	+0 954
3 "	28·359	80	·30	+0·441	+0 059
4 "	·538	29 10	60	+0 502	–0 062
5 "	29 101	50	29 00	+0 399	+0 101
6 "	·446	·65	15	+0·204	+0·296
7 "	·712	·75	25	+0·038	+0 462
8 "	726	85	·35	+0 074	+0 376

The actual readings of the two barometers during the storm are plotted in plate XVII. It will be seen that they give pressure curves differing very greatly in form, due chiefly to the large differences between the readings at 1 and 2 P.M.

In the case of the "*Safir*" observations, the barometer fell rapidly in the earlier stages of the cyclonic storm (from 6 P.M. to 10 P.M.), and was almost steady during the period of hurricane winds from 11 P.M. to 3 A.M., and it rose much more rapidly as the storm withdrew from Port Blair than it did during its approach. The curve is very unsymmetrical. On the other hand, the Port Blair Observatory curve is fairly symmetrical. It shows a moderate change of pressure in the earlier and later stages of the storm (or moderate gradients in the outer storm area), whilst it gives remarkably steep gradients near the centre in the area of hurricane winds. The curve representing the Port Blair Observatory pressure data is not only in strict accordance with the broad features of the air motion, but resembles in all its important features the pressure curves of stations over which the calm centre of severe cyclones have passed in India, *e g*, the False Point cyclone of September 1885 and the Midnapur cyclone of October 1874, given in Plate XXVII of the "Hand-book on Cyclonic Storms in the Bay of Bengal," published by the India Meteorological Department.

In the preceding table the readings of Port Blair Observatory are reduced to sea-level and constant gravity. In the third column are given the readings on board the "*Safir*," corrected to sea-level and constant gravity by the use of the correction + 0·30″ determined in the manner stated on page 50, and in the fourth column the readings of the same instrument reduced by the use of the correction—0·20″ which gives practically the same pressure in the calm central area when advancing over the "*Safir*" as that which was observed when passing over the observatory on Ross Island. On either supposition as to the correction necessary for the "*Safir*" aneroid, it will be seen that there are great discrepancies between the observations which cannot be explained by difference of position with respect to the centre. In the first place, the correction suggested by the captain's remark that the aneroid usually ranged between 29·52″ and 29·62″ at Port Blair is +·3″, whilst the correction necessary to make the two instruments give practically the same pressure when the calm centre was passing over both is —·2″. The difference between these two corrections is ·5″. Again, the differences between the reduced barometric readings from 3 A.M. to 9 A.M. range on the first supposition from ·04″ to ·56″, and on the second supposition from —·06″ to +·46″, showing what may be termed a range of variation of ·52″. The greatest difference of pressure due to their relative positions when the gradients were steepest was almost certainly not more than ·3″.

The only possible explanation of these very large differences is that the "*Safir*" aneroid was an untrustworthy instrument, and hence that its readings cannot be accepted as giving the true record of the pressure changes during the storm. It is hence assumed that the log of the "*Safir*" gives correct data of the time of the passage of the central calm area, but that the observatory gives correct pressure data of the storm. According to the latter the barometer fell three-tenths of an inch between 6 P.M. and 1 A.M., a rate of fall which was rapid enough to show that a cyclonic storm of considerable intensity at least was approaching. Hence, as stated by one of the survivors of the S.S. *Enterprise*, the captain ordered steam to be got up between 10-30 P.M. and 11 P.M., thus evidently anticipating the early approach of bad weather. Assuming that the calm centre reached the observatory about 2-30 A.M., it is almost certain that the barometer fell an inch in an interval of half an hour, whilst the storm advanced 9 or 10 miles. This gives gradients of extraordinary steepness in front of the storm. The barometer rose ·56″ between 4 A.M. and 5 A.M. The gradients were very steep in the rear of the storm, but probably considerably less than those which obtained immediately in front.

The captain of the "*Safir*" appears to have also exaggerated the force of the wind at the commencement of the storm Mr Carroll states in a letter that at 10 P M a fresh breeze was blowing with lightning and rain, but that it was not until midnight that he became alarmed at its force and began to anticipate a severe storm

Report on the storm in the South Andaman Island by Mr Portman (Plate XVI)

The following extract from a report submitted to the Commissioner of the Andamans by M V Portman, Esq, officer in charge of the Andamans, Port Blair, gives a full and interesting account of the destruction effected by the storm in the Andamans —

"From Port Blair to Kyd Island all the trees were stripped of their leaves and smaller branches, and after passing Barua tang, 11 miles north of Ross Island we noticed that many of the larger trees had been blown down.

"At Kyd Island, 18 miles north of Port Blair, the wind had reached its greatest violence and many of the trees were down.

"A mile out at sea the water was black and thick with mangrove mud, and the stench peculiar to mangrove swamps was very powerful This may be due to the mangrove trees having been torn up by the storm and the black mud which accumulates round their roots being set free and washed away by the tide

"At Rogo lo-chang, 30 miles north of Port Blair, the jungle no longer appeared stripped of its leaves and branches, and at Strait Island, 34 miles north of Port Blair, I learnt that, though heavy rain had fallen no storm of importance had passed

"Just south of Strait Island I met five canoes full of Andamanese They had been at a village near Rogo-lo-chang, 28 miles north of Port Blair, during the storm, and stated that during the night of the 1st they were so frightened by the falling branches that they went into the sea until the storm had passed

"I proceeded through Colebrooke Passage, 33 miles north of Port Blair, where the jungle was in its usual beauty, not a branch being broken or a leaf blown off and passed through Humfray Straits to Lekera lunta and anchored for the night between Bluff Island and the south end of Spike Island Here, 34 miles north of Port Blair, I found a storm had passed, breaking many of the smaller branches of trees in the jungle but not of sufficient violence to give the jungle the stripped appearance it has near Port Blair.

"In Humfray Straits a few bamboos were blown about, but all the leaves were not off the trees

"I learnt, partly from observation and partly from the Andamanese I met near Strait Island, that the cyclone had passed over the Archipelago Islands, stripping the trees south of Tadma Juru (a strait 24 miles north of Port Blair), doing considerable damage between that place and Nicholson Island 28 miles north of Port Blair, and apparently leaving Nicholson Island 30 miles from Port Blair untouched I have sent two parties to look along the coast of the Archipelago Islands for any wrecks which may have occurred

"On the 9th we steamed down the west coast of the South Andamans At Breakfast Bay, 28 miles north of Port Blair, the trees again appeared stripped of their branches and leaves, and many trees had fallen.

"At Port Campbell, 20 miles north-west of Port Blair, and in the same latitude as Kyd Island, the wind had evidently been of great violence. Montgomery and Petrie Islands, at the entrance of the harbour, had the majority of their trees down, and the cliff at the south side of the harbour, formerly having a crest of lofty trees, was bare. Portions of the cliff, which is of soft sandstone, had fallen into the sea. From here to Eli-plunta, 5 miles north and 16 miles east of Port Blair, the jungle had the appearance of a forest in England in winter.

"About 5 miles south of Port Campbell I saw some Jarawas on the beach. They have, of course, experienced a great fright, as the jungle in their country is so damaged and have probably received injuries from falling trees. Had I been able to do so, I would have left food and presents for them on the beach, but the heavy sea on the reef prevented my landing.

"At Port Mouatt the damage was not so great as at Port Blair, and further south the wind had been perceptibly less fierce. Termugli Island was not injured, and all the trees on Grub Island were standing with their leaves on, though they were stripped of leaves and branches on the mainland a mile off.

"The jungle in the Labyrinth Island had not suffered much. The trees on the Yaratan hills and at Biriwil-la-Loicherá, the south-west corner of the South Andamans, had been stripped of all their leaves and branches.

"I anchored in Portman harbour (Rutland Island) for the night. The jungle on Rutland Island had not suffered much and the leaves were not off the trees.

"On the 10th we proceeded on to the Little Andamans. The jungle on Cinque Passage and Brother Islands showed no sign of a cyclone having passed.

"We anchored in Bunda creek, Little Andamans, at 11 A.M., and were received by a number of "Oonges," both men and women, who had collected on either bank. Some of them swam off on board, and I learnt no storm of special violence had passed, and that Kogio Kai, Tomiti and all the Tambe-ébin people were turtling on the South Brother Island, which they would not be doing had they just experienced a cyclone.

"On the 11th we returned to Port Blair, as the weather looked stormy. On the way up I noticed that the zone of greatest violence of wind commenced at about 11 miles south of Port Blair.

"From the above observations I draw the following conclusions:—The greatest violence of the wind was in latitude 11° 58′ north. The zone of violence of wind sufficient to strip the trees of their leaves and branches and to fell several was from latitude 11° 32′ N. to latitude 12° 8′ N. on the east coast of the islands. The zone only extended to latitude 12° 4′ N. on the Archipelago Islands, which are about 15 miles east of Port Blair.

"On the west coast of the islands this zone extended from Lat. 11° 35′ N. to Lat. 12° 8′ N. The whole storm, including the above and those parts of the islands where the wind had sufficient force to break the branches of the trees, extended on the east coast from Lat. 11° 28′ N. to Lat. 12° 14′ N., and on the west coast from Lat. 11° 30′ N. to Lat. 12° 18′ N. Outside of this zone rain and dirty weather undoubtedly occurred, but there was no storm of any exceptional violence.

"Near the southern and northern edges of the zone of great violence the wind seemed to have been capricious, often levelling the trees in one place, and not even blowing the leaves off exposed clumps of trees half a mile away."

Inferences relating to chief features of storm when crossing the South Andaman Island.

The more important inferences from the preceding account are —

1st —The storm consisted of an inner area of destructive hurricane winds and of an outer area of comparatively moderate winds

2nd —The inner storm area of hurricane winds was not more than (12° 8′—11° 30′=38 geographical miles, or) 45 English miles in width on the east side of the island, and (12° 8—11° 35′=33 geographical miles, or) 38 English miles on the west side

3rd —The diameter of the storm area in which the winds were strong enough to break the branches of trees was (12° 14′—11° 28′=46 geographical, or) 54 English miles

4th —The strongest winds, according to Mr Carroll, lasted from 1 A M to 5 A M, giving a duration of four hours for the passage of the inner storm area across Port Blair, corresponding to a diameter of 75 miles (assuming the velocity of the storm at this stage to have been 18¾ miles)

5th —The inner storm area was, hence, almost certainly elliptical-shaped, the longest diameter (lying east and west) probably not exceeding 75 or 80 miles, and its shortest diameter (lying north and south) not exceeding 50 miles A comparison of these data with those of the dimensions of the inner storm area or typhoon when crossing the Malayan Peninsula shows that the storm was practically unchanged in shape or dimensions, and that the direction of the longer diameter of the storm area in both cases approximately coincided with the direction of advance of the storm

Mr Portman states that the Andamanese informed him that a similar cyclone occurred many years ago (probably in 1864) He believes, however, for various reasons that it was by no means so severe as the present one, and that the winds were not strong enough to cause the destruction of trees such as occurred on this occasion.

The following account of the destruction caused by the storm at Port Blair was given by Mr Carroll —

' From the Chief Commissioner down every man, woman and child in the settlement more or less suffered from wet and exposure, having either partly or wholly unroofed houses as shelter All the convict barracks and hospitals in the settlement, bazars, and self supporters' villages, are in most instances complete wrecks, and at present no dry spot is available. The sea face walls and stone

jetties have been destroyed, stones weighing several pounds upheaved and scattered for many yards over roads and adjoining spaces. Roofs of the Co-operative stores, Asiatic Steam Navigation Company's Agent's office, Port Officer's office, Volunteer Drill Hall, the extensive Commissariat godowns and Marine workshop sheds lie scattered over the roads, every tree on Ross Island has been either uprooted or had its branches broken off, and the large trees of the forests deprived of their foliage stand out as so many bare poles. Sea gulls were found dead on the roads, and birds on the wing were dashed against the buildings. The destruction of building has been attended with wounds, injuries and loss of life. At this present moment I do not know the exact numbers, but I am sure I am within bounds in saying that about 40 lives have been lost and thrice that number injured by the falling and collapsing of buildings. All but six of the whole crew of the *Enterprise* (79 in number) have been lost, and several lighter men drowned. The damage done to property will not be rectified for years. The settlement is one scene of desolation."

Storm observations taken on board the ship *Bann* on 2nd November.

The only vessel which was within the storm area during the day was the ship *Bann*. The following gives her meteorological log of the day in full :—

Hour.	Position.		Barometer, Actual.	Wind		Weather.
	Latitude N.	Longitude E.		Direction.	Force.	
			Inches.			
4 A.M.	...	...	29·72	N.E.	2	Light unsteady breeze and threatening appearance.
8 ,,	...	...	...	N.E.byE.		Very threatening to north-east.
10 ,,	...	...	...	...	...	Wind freshening rapidly with high confused sea rolling up from the north.
Noon	12° 11′ by account.	90° 12′	29·42	W.	...	Strong gale from the west, with furious squalls and heavy rain; cyclonic appearance to the north.
1 P.M.	...	...	...	W.S.W.	...	Heavy gale, wind veering to south. Heavy squalls with blinding rain. Appearance of the weather very threatening and cyclonic; very heavy sea running.
4 P.M.	...	...	29·62	S.W.	...	Finer appearance; squalls less violent.
8 P.M.	...	...	29·70	S.	...	Much finer looking to south. Heavy bank of clouds and threatening to the north-west.
Midnight	...	...	29·80	S.	9	Strong gale and hard squalls, with heavy rain.

The preceding extracts show that, although weather looked very threatening to north east, the *Bann* had light unsteady north-east breezes up to 10 A M., when she began to feel the influence of the cyclone At noon she had a strong to heavy gale from the west with furious squalls and heavy rain The storm centre was at that time in about Lat. 12° 10′ N and Long 91° 15′ E, and advancing in a west north-west direction. The position of the *Bann* (by account) was Lat 12° 11′ N and Long 90° 12′ E, and was almost certainly correct within a few miles The *Bann* was, hence, less than 80 miles to the west of the centre at that hour. The fact that she had light variable breezes until 10 A M, when she was not more than 80 miles from the centre, confirms the previous conclusions as to the small magnitude of the storm The rapid shift of wind in the afternoon, from west to south, is also in strict accordance with the fact that the storm was of small extent, and also indicates that the centre was advancing in a west-north west direction to the north of the vessel

November 3rd (Plate X.)

November 3rd.—The barometric changes of the previous 24 hours were small in amount at all the Indian land stations, and under ordinary circumstances would have been considered of little or no significance.

General meteorological conditions in India

Pressure had slightly increased in Burma and North-Western India, and fallen elsewhere. The following table gives the more important features of the 8 A M pressure data of the 3rd —

Province	Mean change of pressure in previous 24 hours.	Mean variation from normal	Anomaly
	"	"	"
Burma	+ 013	+ 027	— 026
Bengal and Assam	— 017	+·046	— 007
North-Western Provinces and Oudh	— 006	+ 074	+ 021
Punjab	+ 017	+ 104	+ 031
Sind and Rajputana	+ 018	+ 079	+ 026
Guzerat and Central India	— 008	+ 071	+·018
Central Provinces	— 006	+ 071	+ 018
Bombay	— 012	+ 031	— 022
Madras	—·035	+ 013	— 040

Skies were thickly clouded in Burma, and were clouding over in Bengal. The following shows the amount and extent of the change:—

District.	Average amount of cloud at 8 A.M. of		
	1st.	2nd.	3rd.
Burma Coast	5·6	5·4	7·2
Burma Inland	1·0	3·4	6·8
Bengal Coast	0	1·0	8·5
Bengal Inland	0	0·6	8·5
Central Provinces	0	0	0·
North Madras Coast	0·6	1·4	7·4

The rapid extension of cloud over the Bay area and in Bengal and the Peninsula is one of the most characteristic features of storms in the Bay of Bengal.

Summary of the meteorological condition in India on the 3rd.

The following gives a brief summary of the meteorological conditions of the day. Pressure was above the normal, except in Malabar the excess being greatest in the Punjab, where it exceeded a tenth of an inch. Northerly winds prevailed in Bengal and north-easterly to easterly winds in the Peninsula, and calms or variable winds in North-Western India. Winds were hence practically normal in direction. Temperature was above the average, except in the Central Provinces, where it averaged 2° below the normal. Light showers had fallen in South and Central Madras. Skies were clear over the whole of India, except Burma, Bengal and Madras. Sea was smooth to slight at the west coast stations of the Bay, and was rough at Diamond Island. The observations indicated the existence of a depression and cyclonic storm in the centre of the Bay, but gave very feeble indications of the character, extent or intensity of the disturbance.

The following gives a brief summary of the 8 A M observations taken on board vessels in the Andaman Sea and at Port Blair, Nancowry and Diamond Island — Weather in the Andaman sea.

NAME OF STATION OR VESSEL	POSITION		BAROMETER		WIND		Condition of sea	Weather
	Latitude N	Longitude E	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force		
	° ′	° ′		Inches				
Nancowry				29 931	S S E	Light		Rainfall 1 14 inches, overcast
Port Blair				29 851	S S E	Moderate		Rainfall 2 39 inches overcast
Diamond Island				29 917	Calm	0		Rainfall 2 22 inches, overcast
S *Garnet Hill*	6 45	95 10	30 00	29 93	S		Smooth	Drizzling rain
S S *Nevasa*	8 0	98 0	29 96	29 91	E S E	2		Cloudy
S *Marpesia*	11 43	94 38			S E	2		Clear
S S *Shahjahan*	14 15	94 50	29 96	29 87	E S E	4		Cloudy
S S *Palamcotta*	15 50	94 15	29 95	29 88	E S E	4	Sea rough	Hard squalls
S S *Kola*	Rangoon River		30 08	29 91	E	4	...	Fine clear weather, with passing clouds

These observations show that weather was reverting to its normal character in the Andaman Sea. The S S *Goa*, which left Moulmein for Rangoon at noon, had fine weather with light winds and the S S *Kola* which left Rangoon for Akyab, had light winds and fine clear weather during the day and night of the 3rd in the north of the Andaman Sea The S S *Shahjahan* between Rangoon and Port Blair had cloudy weather, moderate breezes and slight sea throughout the day South-east to east winds prevailed over nearly the whole area.

The available information of the weather in the Bay of Bengal on the 3rd obtained from the logs of ships is meagre and unsatisfactory. Weather in the Bay of Bengal

The following gives a summary of the 8 A.M. observations utilised in the chart of the day (Plate X):—

Ship.	Position.		Barometer.		Wind.		State of Sea.	Weather.
	Latitude. N.	Longitude. E.	Actual.	Corrected, and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches	Inches				
S. S. *Stella* . .	6 0	89 50	29·98	29·89	W.	4	...	Cloudy. Fine in evening.
S. *London Hill* .	7 50	92 12	...	...	S.S.W.	4	...	Moderate unsteady wind; heavy showers during whole day.
S. S. *Pundua* .	9 38	83 43	30·02	29·85	S.W. by W.	4	...	Cloudy.
S. S. *Plassey* . .	10 0	83 55	29·88	29·85	N.	2	Heavy north swell.(?)	...
S. *Joseph* . .	10 15	91 50	29·90 ?	29·85	E.S.E.	6	...	Squally, with heavy rain during day.
S. *Bann* . .	13 30	91 10	...	...	S.S.E.	9	...	Very threatening to N.E.
S. *Kalakana* . .	13 45	88 15	29·76	...	S.S.W.	...	...	...
S. S. *Congella* . .	14 20	81 40	30·05	29·85	N.E.	...	...	...
S. S. *Baria* . .	14 45	81 40	29·66	29·85	N.N.E.	3	...	...
S. *Lena* . . .	14 50	88 56	...	...	S.	9	Confused .	Moderate to heavy gale during day. Terrific squalls at noon.
S. S. *Japan* . .	15 30	93 10	30·09	29·89	E.	2	High sea from S. W.	Drizzling in morning. Hard squalls in afternoon.
S. S. *Loodiana* .	16 0	85 0	29·90	29·80	N.E.	...	...	...
S. *Mayo* . . .	16 40	94 5	29·90	29·85 ?	N.E.	3	...	Squalls, with rain, overcast in afternoon.
S. S. *Waverley* .	Negapatam		...	...	N.E. by N.	5	Moderate in morning. High in evening.	Overcast.
S. S. *Lincolnshire* .	18 15	86 20	29·78?	29·85	E.	5	Heavy confused sea.	Very heavy rain squalls in afternoon. Fierce rain squalls at midnight.
S. S. *Saint Regulus*	18 15	90 30	...	...	E.	5 to 6	...	Hard squalls and heavy rain until 8 P.M.
S. S. *Meanatchy* .	18 27 (noon)	87 44	30·01	29·88	E.	...	Slight swell from S.-E.	...
S. S. *Arratoon Apcar*	18 35	90 0	29·79	29·85	E.	7	Strong head	Squally with rain.
Barque *Lady Agnes*	19 30 (noon)	88 5	...	...	E.N.E.	9	Confused .	Squally.
S. *Anne Main* .	20 45	90 15	29·86	29·93	N.E.	...	Fresh swell	Overcast. Gloomy, Spitting rain during day.
F. L. V. *Canopus* .	Intermediate station.		30·10	29·96	N.E.	5	Southerly swell.	Wind increased to fierce gale in afternoon

Date and Hour	Position: Latitude N	Position: Longitude E	Barometer: Actual	Barometer: Corrected and reduced to sea level and constant gravity	Wind: Direction	Wind: Force	State of Sea	Weather
			Inches	Inches				
8 A M .			29 79	29 85	E	6	Strong head sea	
Noon .	18 11	90 24	75	81	N E	8	High cross sea	Hard squalls with heavy rain P M —Fresh gale with heavy squalls and dangerous cross sea running 1 30 P M wind fell away to a calm for 3 minutes, after which the wind shifted about from N E to W and finally settled back to
4 P M .			90	96	N E			
8 P M .			30 00	30 06	N E	Hard gale.		Hard gale with squalls of hurricane force accompanied with heavy rain, thunder and lightning
Midnight	.		29 90	96	E			Hard gale continuing, the squalls coming as before in terrible force, with rain, thunder and lightning

The *Arratoon Apcar* was upwards of 340 miles to the north east of the centre at 8 A M , at which time she had strong easterly breezes, with occasional very hard squalls. The weather became worse during the evening, and from 8 P M to midnight, when she was about 350 miles to the east north-east of the centre, she had a hard gale with squalls of "hurricane and terrible force," and very heavy rain

It is also noted that she had a fresh north-east gale with heavy squalls and a dangerous cross sea at noon, and that the wind at 1-30 P M. fell away to a calm, which lasted for three minutes, after which the wind came down for some time from west This appears to point to this vessel having passed through a small subsidiary whirl or depression The barometer observations, it may be noted, are also in accordance with this supposition

The evidence for the existence of small subsidiary depressions and whirls in the more intense cyclonic storms of the Bay is as yet limited, but sufficient has been accumulated to show that they are of not infrequent occurrence. It is evident that their probable occurrence adds a difficulty to the laws of storms.

Ship *Bann*.

The ship *Bann* passed from the western to the eastern quadrant of the storm on the afternoon and night of the 2nd. As the storm advanced westwards she passed into the outer storm area on the morning of the 3rd and advanced in a north-westerly direction up to the head of the Bay, where she again encountered heavy weather on the 6th. The following gives the weather information contained in her log of the 2nd and 3rd :—

Date and hour.	Position.		Barometer.		Wind		State of Sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	°	″	Inches.	Inches.				
3rd. 4 A.M. .	...	...	29·75	?	S.	9	Very high and confused.	Hard squalls, with heavy rain.
8 A.M. .	...	...	·80	?	S.S.E.	...	...	5 A.M.—Fine appearance. Barometer working steadily.
Noon .	13 41	91 23	·80	?	S.E.	9	High	Squally. P. M.—Fresh gale, with heavy clouds and rain.
4 P.M. .	...	...	·78	?	S.E. (Gale moderating.)	...		......
8 P.M. .	...	...	...	...	S.E.	7	...	Dark and gloomy-looking to the westward.
Midnight.	...	...	...	...	S.E.	6	...	Dark and overcast with rain.

The S. *Bann* was from 250 to 300 miles to the east of the centre on the afternoon and evening of the 3rd. She had a strong to a fresh gale during the whole of the afternoon. The weather improved during the night. She had strong south-east winds, with occasional squalls and rain during the next 36 hours.

The ship *Kalakana* was probably nearest to the centre on the morning of the 3rd. The information in her log is very meagre.

The following gives extracts from her log for the 2nd and 3rd —

Log of ship *Kalahana*

Date and hour.	Position		Barometer		Wind
	Latitude N	Longitude E	Actual	Corrected and reduced to a constant gravity	Direction
2nd	°	°			
4 AM			30 00	29 87	N N E
8 AM			01	8	N N E
Noon	13 15	88 33	00	8	E
4 P M			29 96	83	N E
8 P M			92	79	N N W
Midnight			66	53	N N W
3rd					
4 A M			72	59	W N W
8 A M			80	67	S S W
Noon	13 47	88 19	88	75	S
4 P M			88	5	S S W
8 P M			89	70	E S E
Midnight			91	78	E S E

No information of the weather or strength of her winds is available The observations of the barometer and wind show that she was nearest to the centre between midnight and 4 A M, and that at the latter hour the centre was probably 40 or 50 miles to the north Her position by account at that time was Lat 13° 40′ N and Long 88° 20′ E It is however almost certain that she was considerably further to the west, and it is hence not possible to use her information to fix the position of the centre at midnight of the 3rd

Inferences respecting storm from data of 3rd November

The whole of the observations indicate that the storm area was extending and that the extension was occurring most rapidly in the eastern and southern quadrants of the storm area This is most clearly shown by the weather experienced by the S S *Lincolnshire* *Regulus*, and *Arratoon Apcar* The S S *Saint Regulus*, 350 miles north-east of the storm centre at noon, had hard squalls with heavy rain, the S S *Lincolnshire* 300 miles north north west of the centre at noon, had a stormy gale, with violent rain squalls, and the *Arratoon Apcar*, 350 miles north east of the centre at noon, had very squally weather, with strong north east winds It is hence evident that the area of the strong winds and gales, and of severe squalls, had extended to a distance of at least 350 miles to the north east and south-east of the centre In the absence of information it is not possible to state whether the extension of the area of squally weather and gales occurred to the same extent in the western quadrant, but the data of the *Plassey*, *Waverley*, and other vessels off the Coromandel coast appear to be opposed to it

November 4th. (Plate XI.)

November 4th.—Pressure decreased over the whole of India. The fall was greatest in the Madras, Orissa and West Bengal coast districts, where it ranged from a tenth to a sixth of an inch. Skies were overcast in the North Madras coast districts, and were more clouded than hitherto in Bengal. Rain had, however, not yet commenced to fall in the coast districts of North Madras or in Orissa or Bengal:—

The following, giving mean cloud data at 8 A.M. for the 2nd, 3rd and 4th, shows the extension of cloud to the north and north-west of the area of depression:—

Province.	Mean Cloud Amount at 8 A.M. of		
	2nd.	3rd.	4th.
Burma	4·7	7·3	5·4
Bengal and Assam	1·1	5·6	7·9
North-Western Provinces	0	0	1·3
Punjab	0·4	0·1	1·.
Bombay	2·7	3·3	1·9
Central Provinces	0	0·6	2·4
Guzerat and Central India	0	0	0·6
Sind and Rajputana	0	0·3	0
Madras	6·9	7·2	5·3

Weather conditions in India.

The following gives a summary of the 8 A.M. observations at the stations nearest to the storm at that hour:—

Station.	Pressure.			Wind.		Humidity, at 8 A.M.	Cloud at 8 A.M.	Rainfall of previous 24 hours.	Weather and sea.
	8 A.M. reduced to sea level and constant gravity.	Change in past 24 hours.	Variation from mean of day.	Direction at 8 A.M.	Miles per hour past 24 hours.				
	"	"	"					"	
Cocanada	29·753	—·118	—·120?	N.-W.	5	59	10	0	Sea very rough.
Vizagapatam	·727	—·142	—·162	N.-W.	6	52	10	0	Sea rough.
Gopalpur	·739	—·151	—·155	N.-N.-E.	21	90	10	0·08	Sea very rough.
False Point	·790	—·112	—·122	N.-N.-E.	16	84	10	0·20	...
Saugor Island	·869	—·074	—·049	E.-N.-E.	9	91	10	0·02	Sea slight.

These observations indicate that there was a largish disturbance off the coast of the Circars and Ganjam, and that the centre was probably nearest to Vizagapatam, but they give no definite information of the intensity of the storm. The most noteworthy features of the observations were the very dry north-west winds at Cocanada and Vizagapatam, and the absence of rainfall in the outer area of the

disturbance The following give the 4 P M observations at four stations on the north west coast of the Bay —

Station	Pressure			Wind		Humidity		Cloud 4 P M	Rainfall, 8 A M to 4 P M	Weather
	Actual 4 P M reduced to sea level and constant gravity	Change in past 24 hours	Variation from mean of day	Direction at 4 P M	Miles per hour 0 A M to 4 P M	Mean of 0 A M and 4 P M	4 P M			
	"	"	"							
Vizagapatam	29 673	— 107	— 202	N W	6	50	49	10		Overcast
False Point	732	— 147	— 153	N N E	24	93	93	10	0 93	Squally
Shortt's Island	858	— 047	?	N E & E	17	?	91	10	0 40	Squally
Saugor Island *	·822	— 076	— 059	N E	16	87	91	10		Threatening

* Reduced to 32° F only

These observations show that winds were unchanged in direction at these coast stations, but that their force was increasing rapidly at False Point and Saugor Island, due chiefly to the extension of the storm area during the day

The following gives an account of the weather at Vizagapatam during the whole period from the 3rd to 7th furnished by the Port Officer —

Date	Weather
3rd	Dull sky with north-east winds. Sea rough
4th	Sea
5th.	— — ,, — smooth
6th	Clear sky, with light south-east winds. Sea pefectly calm
7th	Weather fine and clear, with light north winds. Sea smooth

It shows that the storm did not affect the weather at Vizagapatam on the 4th to any important extent Weather was unsettled and sea rough, but the north west winds gave clear skies during the greater part of the day

The meteorological data of this date furnished by the ships in the Bay are very unsatisfactory, as they do not enable the position Meteorology of the Bay of Bengal.

November 4th. (Plate XI.)

November 4th.—Pressure decreased over the whole of India. The fall was greatest in the Madras, Orissa and West Bengal coast districts, where it ranged from a tenth to a sixth of an inch. Skies were overcast in the North Madras coast districts, and were more clouded than hitherto in Bengal. Rain had, however, not yet commenced to fall in the coast districts of North Madras or in Orissa or Bengal:—

The following, giving mean cloud data at 8 A.M. for the 2nd, 3rd and 4th, shows the extension of cloud to the north and north-west of the area of depression:—

Province.	Mean Cloud Amount at 8 A.M. of		
	2nd.	3rd.	4th.
Burma	4·7	7·3	5·4
Bengal and Assam	1·1	5 6	7·9
North-Western Provinces	0	0	1·3
Punjab	0·4	0·1	1·[illegible]
Bombay	2·7	3·3	1·9
Central Provinces	0	0·6	2·4
Guzerat and Central India	0	0	0·6
Sind and Rajputana	0	0·3	0
Madras	6·9	7·2	5·3

Weather conditions in India.

The following gives a summary of the 8 A.M. observations at the stations nearest to the storm at that hour:—

Station.	Pressure.			Wind.		Humidity at 8 A.M.	Cloud at 8 A.M.	Rainfall of previous 24 hours.	Weather and sea.
	8 A.M. reduced to sea level and constant gravity.	Change in past 24 hours.	Variation from mean of day.	Direction at 8 A.M.	Miles per hour past 24 hours.				
	"	"	"					"	
Cocanada	29·753	—·118	—·120?	N.-W.	5	59	10	0	Sea very rough.
Vizagapatam	·727	—·142	—·162	N.-W.	6	52	10	0	Sea rough.
Gopalpur	·739	—·151	—·155	N.-N.-E.	.21	90	10	0·08	Sea very rough.
False Point	·790	—·112	—·122	N.-N.-E.	16	84	10	0·20	...
Saugor Island	·869	—·074	—·049	E.-N.-E.	9	91	10	0·02	Sea slight.

These observations indicate that there was a largish disturbance off the coast of the Circars and Ganjam, and that the centre was probably nearest to Vizagapatam, but they give no definite information of the intensity of the storm. The most noteworthy features of the observations were the very dry north-west winds at Cocanada and Vizagapatam, and the absence of rainfall in the outer area of the

disturbance. The following give the 4 P.M. observations at four stations on the north-west coast of the Bay:—

Station.	Pressure.			Wind.		Humidity.		Cloud 4 P.M.	Rain-fall, 8 A.M. to 4 P.M.	Weather.
	Actual, 4 P.M., reduced to sea level and constant gravity.	Change in past 24 hours.	Variation from mean of day.	Direction at 4 P.M.	Miles per hour, 10 A.M. to 4 P.M.	Mean of 10 A.M. and 4 P.M.	4 P.M.			
	"	"	"							
Vizagapatam	29·673	—·107	—·202	N.-W.	6	50	49	10		Over-cast
False Point	·732	—·147	—·153	N.-N.-E.	24	93	93	10	0·93	Squally.
Shortt's Island.	·858	—·047	?	N.-E. & L.	17	?	91	10	0·40	Squally
Saugor Island.*	·822	—·076	—·059	N.-E.	16	87	91	10	...	Threatening

* Reduced to 32° F. only.

These observations show that winds were unchanged in direction at these coast stations, but that their force was increasing rapidly at False Point and Saugor Island, due chiefly to the extension of the storm area during the day.

The following gives an account of the weather at Vizagapatam during the whole period from the 3rd to 7th furnished by the Port Officer:—

Date.	Weather
3rd.	Dull sky, with north-east winds. Sea rough and boisterous
4th.	Bright sky, with light north-west winds. Sea rough, with unsettled weather.
5th.	Clear sky, with south-west winds. Sea smooth.
6th.	Clear sky, with light south-east winds. Sea pefectly calm
7th.	Weather fine and clear, with light north winds. Sea smooth.

It shows that the storm did not affect the weather at Vizagapatam on the 4th to any important extent. Weather was unsettled and sea rough, but the north-west winds gave clear skies during the greater part of the day.

The meteorological data of this date furnished by the ships in the Bay are very unsatisfactory, as they do not enable the position

Meteorology of the Bay of Bengal.

of the centre to be determined exactly at any period during the day. The following table gives a summary of the 8 A.M. data :—

SHIP.	POSITION.		BAROMETER.		WIND.		State of sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
			"	"				
S. *Eurydice* .	9°5′	92°30′	...	...	S.-E.	...	......	Hard squalls, much rain.
S. *London Hill*	9°45′	91°57′	30·15	29·87	S.-E.	...	......	Squally.
S. S. *Pundua* .	...	...	...	...	...	...	......	......
S. S. *Loodiana* .	12°30′	83°50′	29·90	29·80	W.N.W.	...	Moderate sea	Fine and clear.
S. *Joseph* .	13°0′	91°45′	...	...	S.-E.	5	......	Squalls, heavy rain.
S. S. *City of Vienna.*	13°25′	84°40′	29·84	29·75	N.-W.	3	Rough sea (N.-E.)	......
S. S. *Plassey* .	13°30′	84°50′	29·48	29·75	N.-W.	5	......	Squally with heavy rain.
S. S. *Shahzada*	15°34′	94°27′	30·00	29·87	S.-S.-E.	1	......	Showery.
S. *Kalakana* .	15°35′	89°31′	29·76	29·73 ?	E.-S.-E.	...	......	......
S. S. *Congella* .	16° 5′	83° 20′	29·92	29·72	N.-W.	...	Heavy confused sea.	......
S. S. *Baria* .	16° 45′	83° 45′	29·50	29·69	N. by W.	4	......	......
S. S. *Lawada* .	15° 58′	96° 0′	30·10	29·90	S.-W.	2	......	Fine.
S. S. *Kasara* .	Off KyoukPhyoo		30·04	29·88	E.	3	......	Swell from westward, squally in night.
S. S. *Waverley* .	18°0′N	85°30′?	29·60	...	N.	9	High confused sea.	Heavy squall.
S. S. *Meanatchy*	18° 18′	88° 20′	29·84	29·71	S.-E.	7	High heavy S.-E. swell.	Weather moderating.
S. S. *Mayo* .	At Akyab		29.93	...	N.-N.-E	...	......	Overcast, drizzling rain.
S. S. *Japan* .	18° 30′	90° 55′	30·06	29·86	S.-S.-E.	...	......	Hard squalls and heavy rain.
S. S. *Nubia* .	18° 54′	87° 15′	29·74	29·7	E. by N.	6-7	......	Heavy squalls and rain.
Barque *Lady Agnes* .	19° 45′	86° 30′	...	...	E.-N.-E.	10	High long sea.	Hard squalls.
S. S. *Regulus* .	Anchored at E. Channel		?	?	E.	4	......	.. ...
F. L. V. *Canopus* .	...	...	30·03	29.91	E.	5	......	Light squalls.
F. L. V. *Star* .	...	...	30·03	29·89	E.-N.-E	5	......	......
S. S. *Lincolnshire* .	2° 10′	88° 10′	29·80	...	E.-N.-E.	5	......	Heavy rain squalls.
S. S. *Canara* .	Diamond Harbour		29·90	...	N.-E.	2	......	Overcast.

Weather in the Bay.

The preceding data show that weather was very squally with strong southerly winds in the eastern half of the entrance to the Bay. It was fine and clear with light to moderate winds off the East Ceylon and Coromandel coasts and also over the greater part of the Andaman Sea. Weather was more or less disturbed over the centre of the Bay, and squally weather had now extended to the

east of the Bay. The light vessels reported squalls and fresh E.-N.-E. winds in the morning. Weather was gloomy and skies overcast with north-east winds in South Bengal.

Discussion of observations of vessels involved in the storm on 4th November.

The only vessels which were within the storm area during the day were the S.S. *Waverley*, *Baria*, *Nubia* and *Meanatchy* and the Barque *Lady Agnes*. The S.S. *Japan* also experienced severe weather.

S. S. *Baria*.

The S. S. *Baria* passed through the storm on the night of the 4th. The following gives her observations from noon of the 4th to the same hour of the 5th:—

Date and Hour	Position.		Barometer.		Wind		State of sea	Weather
	Latitude N	Longitude E.	Actual	Corrected and reduced to sea level and constant gravity	Direction.	Force.		
			"	"				
4th. Noon	17° 9	84° 3	29 44	29 74	N by W	4		
4 P.M.	...	...	35	6[illegible]	N by W	8		
8 P.M.	.	..	35	65	W by N	9	No information	No information
Midnight	..	..	·34	64	S.-W by W	9		
5th. 4 A.M.	.	.	·26	66	S.-W	11		
8 A.M.	..	..	46	·7[illegible]	S.-W by W	5		
Noon	18° 28	85° 27'	44	7[illegible]	S.-W by W			

The *Baria*, judging from her barometric observations, was nearest the storm centre shortly after 8 P.M., when she had W. by N winds, force 9. The winds increased for some time afterwards, and she had the strongest winds, from south west, at 4 A.M. of the 5th, when their force was 11. The winds quickly moderated and at 8 A.M. she had fresh south-west winds, force 5.

S. S. *Meanatchy*.

The S. S. *Meanatchy* was crossing the Bay at this time between Gopalpur and Rangoon. She left Gopalpur on the evening of the 2nd. The Captain judged by the increasing winds, falling barometer, and slight swell, that there was a cyclone to the south east of the vessel, and he modified his course during the next 48 hours to avoid

of the centre to be determined exactly at any period during the day. The following table gives a summary of the 8 A.M. data :—

Ship.	Position.		Barometer.		Wind.		State of sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
			"	"				
S. *Eurydice*	9°5′	92°30′	...	...	S.-E.	...	......	Hard squalls, much rain.
S. *London Hill*	9°45′	91°57′	30·15	29·87	S.-E.	...	......	Squally.
S. S. *Pundua*	...	...	...	...	...	...	......	......
S. S. *Loodiana*	12°30′	83°50′	29·90	29·80	W.N.W.	...	Moderate sea	Fine and clear.
S. *Joseph*	13°0′	91°45′	...	...	S.-E.	5	......	Squalls, heavy rain.
S. S. *City of Vienna.*	13°25′	84°40′	29·84	29·75	N.-W.	3	Rough sea (N.-E.)	......
S. S. *Plassey*	13°30′	84°50′	29·48	29·75	N.-W.	5	......	Squally with heavy rain.
S. S. *Shahzada*	15°34′	94°27′	30·00	29·87	S.-S.-E.	1	......	Showery.
S. *Kalakana*	15°35′	89°31′	29·76	29·73 ?	E.-S.-E.	...	......	......
S. S. *Congella*	16°5′	83°20′	29·92	29·72	N.-W.	...	Heavy confused sea.	......
S. S. *Baria*	16°45′	83°45′	29·50	29·69	N. by W.	4	......	......
S. S. *Lawada*	15°58′	96°0′	30·10	29·90	S.-W.	2	......	Fine.
S. S. *Kasara*	Off Kyouk Phyoo		30·04	29·88	E.	3	......	Swell from westward, squally in night.
S. S. *Waverley*	18°0′N	85°30′?	29·60	...	N.	9	High confused sea.	Heavy squall.
S. S. *Meanatchy*	18°18′	88°20′	29·84	29·71	S.-E.	7	High heavy S.-E. swell.	Weather moderating.
S. S. *Mayo*	At Akyab		29·93	...	N.-N.-E	...	......	Overcast, drizzling rain.
S. S. *Japan*	18°30′	90°55′	30·06	29·86	S.-S.-E.	...	......	Hard squalls and heavy rain.
S. S. *Nubia*	18°54′	87°15′	29·74	29·7	E. by N.	6-7	......	Heavy squalls and rain.
Barque *Lady Agnes*	19°45′	86°30′	...	...	E.-N.-E.	10	High long sea.	Hard squalls.
S. S. *Regulus*	Anchored at E. Channel		?	?	E.	4	......	......
F. L. V. *Canopus*	...	...	30·03	29·91	E.	5	......	Light squalls.
F. L. V. *Star*	...	...	30·03	29·89	E.-N.-E	5	......	......
S. S. *Lincolnshire*	2°10′	88°10′	29·80	...	E.-N.-E.	5	......	Heavy rain squalls.
S. S. *Canara*	Diamond Harbour		29·90	...	N.-E.	2	......	Overcast.

Weather in the Bay.

The preceding data show that weather was very squally with strong southerly winds in the eastern half of the entrance to the Bay. It was fine and clear with light to moderate winds off the East Ceylon and Coromandel coasts and also over the greater part of the Andaman Sea. Weather was more or less disturbed over the centre of the Bay, and squally weather had now extended to the

ead of the Bay The light vessels reported squalls and fresh E.-N E. winds in the morning Weather was gloomy and skies overcast with north east winds in South Bengal

The only vessels which were within the storm area during the day were the S S *Waverley*, *Baria*, *Nubia* and *Meanatchy* and the Barque *Lady Agnes* The S S *Japan* also experienced severe weather

Description of observations of vessels involved in the storm on 4th November

The S S *Baria* passed through the storm on the night of the 4th The following gives her observations from noon of the 4th to the same hour of the 5th —

S S *Baria*

Date and Hour	Position: Latitude N	Position: Longitude E	Barometer: Actual	Barometer: Corrected and reduced to sea level and constant gravity	Wind: Direction	Wind: Force	State of sea	Weather
			"	"				
4th Noon	17° 9	84° 3	29 44	29 74	N by W	4		
4 P M			15	6	N by W	8		
8 P M			35	65	W by N	9	No information	No information
Midnight			34	64	S W by W	9		
5th 4 A M			36	66	S W	11		
8 A M			46	76	S W by W	5		
Noon	18° 28	85° 27	44	74	S W by W			

The *Baria*, judging from her barometric observations, was nearest the storm centre shortly after 8 P M, when she had W by N winds, force 9 The winds increased for some time afterwards and she had the strongest winds, from south west, at 4 A M of the 5th, when their force was 11 The winds quickly moderated and at 8 A M she had fresh south west winds, force 5

S S *Meanatchy*

The S S *Meanatchy* was crossing the Bay at this time between Gopalpur and Rangoon She left Gopalpur on the evening of the 2nd The Captain judged by the increasing winds falling barometer and slight swell, that there was a cyclone to the south east of the vessel, and he modified his course during the next 48 hours to avoid

passing into the storm area. The following gives a summary of his observations on the 4th :—

Date and Hour.	Pentions.		Barometer.		Wind.		State of Sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
			"	"				
4th. 1 A.M.	...	...	29·87	29·74	N.-E.	9	High confused sea.	Hard squalls. 3 A.M. to 3-20 A.M. dead calm, with heavy rain.
4 A.M.	...	...	·79	·66	E.-S.-E.	8	Considerable sea.	Squally with heavy rain.
6 A.M.	...	...	·79	·66	S.-E. by E.	...	...	......
8 A.M.	...	...	·84	·71	S.-E.	8	Swell from S.-S.-W.	Weather moderating.
Noon	18° 18′	88° 20′	·86	·73	S.-E.	7	......	Wind and sea moderating.
4 P.M.	...	...	·83	·70	S.-S.-E.	7	Decreasing.	Squalls less severe. Heavy rain.
8 P.M.	...	...	·95	·82	S. by E.	6—7	......	Weather clearing to E.
Midnight	...	...	·95	·82	S.-E. by E.	6—7	Moderate.	Fine with passing clouds.

The *Meanatchy* was hence quite in the outer storm area during the day and experienced a moderate to strong gale until the evening, when, by running to the east, she passed into fine cloudy weather, with moderate sea and strong breezes.

S. S. *Nubia.*

The S.S. *Nubia*, which was proceeding from Calcutta to London, passed throgh the eastern quadrant of the storm on the 4th. The following gives the meteorological data relating to the weather of the 4th in her log :—

Date and Hour.	Position.		Barometer.		Wind.		State of Sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
			"	"				
4th. 2 A.M.	...	...	29·83	29·81	E.-N.-E.	6	High S.-E. swell.	Showery.
							... ...	Showery.
4 A.M.	...	...	·78	·76	...	...	Very high confused sea.	Torrents of rain at times.
6 A.M.	...	...	...	...	...	...		
of [illegible] centre [illegible]	..	...	[illegible]	[illegible]	[illegible] E. by N.	[illegible]–7	......	Heavy squalls and rain.

Date and Hour	Position		Barometer		Wind		State of Sea	Weather
	Latitude N.	Longitude E	Actual	Corrected reduced to sea level and constant gravity	Direction	Force		
			"	"				
Noon	18° 51′	87° 15	29 70	29·68	E	8	Confused E N E swell	Heavy squalls
2 P M			64	62	E N E to E			
3 P M			63	61				
4 P M					S E to E	—		Rain squalls.
6 P M			68	66	E		"	Torrents of rain from 7 to 8 P M
10 P M			71	70	E to E S E	6	Less	
Midnight		"	71	69	S E			Heavy rain squalls at times

The *Nubia* was quite on the outskirts of the eastern quadrant of the storm She steered for some hours to the east in the middle of the day She was probably in the same latitude as the storm centre about midnight, but was too far distant from the centre to give its position at that time

November 5th (Plate XII)

5th November —Pressure had continued to give way over the whole of the Indian area, but the changes were small except in North-Madras, the Central Provinces and North-Eastern India, where the fall was due to the advancing cyclone

Weather in India

Skies were now overcast in Orissa, Chota Nagpur, South Bengal and Assam, and were partially clouded in the Gangetic plain as far west as Allahabad Rain was falling in South Bengal, Orissa and Chota Nagpur, but was light, except in Orissa immediately in front of the cyclonic storm, where the rainfall was excessive

8 A M observations at stations on North West coast of the Bay

The following gives 8 A M observations at stations on the Ganjam and Orissa coasts nearest at this time to the storm centre —

Stations.	Pressure (8 A M)			Wind		Cloud proportion 8 A M	Rainfall in past 24 hours
	Actual, reduced to sea level and constant gravity	Change in previous 24 hours	Variation from normal	Direction, 8 A M	Average velocity in miles per hour		
	"	"	"				"
Vizagapatam	29 703	— 024	— 191	W	3	10	Nil
Gopalpur	557	— 152	— 311	W N W	29	8	2 84
False Point	571	— 217	— 346	E	25	10	3 84
Cuttack	571	— 247	— 345	N E	12	10	2 48
Shott's Island*	711	— 167		E N E	15	10	1 20
Saugor Island	777	— 092	— 147	E N E	15	10	0 09

* Reduced to 32° F only

These observations indicate that the cyclone on the morning of the 5th covered Ganjam and Orissa and the adjacent portion of the Bay area. The barometric readings and wind data at these stations showed that the storm was one of very considerable extent and intensity. The centre at 8 A.M. was, as is established in the succeeding discussion, about 10 miles east of Puri, and hence off the South Orissa coast. It was advancing in a north-easterly direction towards False Point.

Weather in Bengal.

The following table gives 8 A.M. observations taken on board ships in the Bay of Bengal on this day :—

Ship.	Position.		Barometer.		Wind.		State of sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	"	"				
S. S. *Urea* . .	9 25	83 15	..	...	N-E.	4	...	Hard swell from N.-E.
S. S. *Clan Matheson.*	10 5	81 20	29·85	29·84	N.-W.	4	N.-E. swell	Fine.
S. *Eurydice*. .	11 0	91 20	...	...	S.	...	...	Squally.
S. S. *Wildcraft*	11 55	81 55	...	...	S.-W.	2	Heavy N.-E. swell.	Fine.
S. *London Hill*.	13 5	92 15	...	...	S.-E.	2	...	Cloudy.
S. *Joseph* .	14 25	91 50	...	...	?	4	...	Squally, heavy rain.
S. S. *Lawada* .	16 20	92 30	30·04	29·84	E.	4	E. swell .	Fine.
S. S. *Plassey* .	16 4	86 50	29·48	29·75	S.-W.	4	Heavy cross sea.	Fine
S. S. *Meanatchy*	17 12	91 30	29·97	29·84	S.-E. by E.	5 to 6	Moderate .	Overcast.
S. S. *City of Vienna.*	17 30	86 30	29·60	29·66	S.-S.-W.	3	Rough cross sea.	Clear. Wind increased to violent gale at 9 P.M.
S *Kalakana* .	17 57	...	...	...	...	...	...	......
S. S. *Waverley*.	18 0	86 0	...	...	S.-W.	7	...	Strong gale and violent squalls gradually increasing in force during day.
S. *Eurydice*. .	18 10	86 0	29·82	29·65	W.-S.-W.	5	...	......
S. S. *Barin* . .	18 12	85 10	29·46	29·65	S.-W. by W.	5	...	......
S. S. *Shahzada*.	18 15	91 2	30·02	29·80	S.-S.-W.	5	...	Squally.
S. S. *Nubia* .	18 44	87 5	29·76	...	S. by E.	6	Tumultuous	......
S. *Lady Agnes* .	(?)	?	...	...	...	...	...	......
S. S. *Lincolnshire*	21 0	88 10	29·78	29·60	E. by S.	6	...	......
S. S. *Japan* . .	21 40	88 20	30·00	29·80?	E.	5	...	......
S. S. *Canara* .	Anchored near Saugor Island.		29·77	29·77	E.-N.-E.	6	...	Light rain.
S. S. *Kola* . .	Near Sandoway (10 miles N.)		30·04	29·88	N.	2	...	Fine.
S. S. *Goalpara*.	14 41	80 56	29·96	...	N.	4	Big swell .	Cloudy.
F. L. V. *Canopus*	21 14	88 11	29·82	29·76	E.-S.-E.	7	S. swell .	......
F. L. V. *Star* .	21 26	88 6	29·81	29·75	E.-S.-E.	5	Rough .	......
S. S. *Regulus* .	Near E. Channel Light ship (30 miles S.).		...	...	E.-S.-E.	9	High cross sea.	Heavy rain, cyclone at midnight.

These observations show that conditions were unchanged in the south of the Bay, where light to moderate winds obtained and weather was generally fine and cloudy Occasional squalls were experienced, *e g.*, the S *Eurydice*, in Lat 11° N and Long 91°20′ E had squally weather during the day and the S *Joseph* in Lat 14°25 N and Long 91° 50′ E, had squalls, with heavy rain in the morning In the centre and north of the Bay cyclonic winds of indraught prevailed and were of force 8 and upwards between the 18th and 21st parallels of latitude and to the west of the 90th meridian The storm area was hence much larger than on the 2nd and 3rd, and had increased considerably in extent during the previous 24 hours, and at the same time the storm had not diminished in intensity

Ships and ports within inner storm area during day

The ship *Lady Agnes* encountered the full strength of the storm on the night of the 4th and morning of the 5th The storm centre passed a little to the east of Gopalpur and Puri during the morning and over False Point in the afternoon It advanced a few miles to the east of Shortt s Island at the mouth of the Dhamrah river late in the evening The following gives the accounts of the storm as experienced by the *Lady Agnes* and at these stations

The ship *Lady Agnes*, bound, as stated in her log for Balasore from Colombo encountered the storm on the 4th and 5th The following gives extracts from her log. No (mercurial) barometer readings, it may be noted are given in consequence of the instrument having been broken during the gale —

Date and Hour	Position		Wind		Weather
	Lat N	Long E	Direction	Force	
Nov 2nd					
A M			N E.		Increasing breeze with fine clear weather
Noon	18° 57	87° 30	E		Strong breeze and cloudy
Afternoon					Wind veered to S E in a squall but veered to E again
Midnight			E	6—7	
Nov 3rd					
A M			E N E	8	Brisk gale
4 A M					Squally with passing showers
Noon	19° 30	88° 5		8—9	Increasing gale and squally, with a confused sea Overcast
8 P M					False Point Light N W by N, distant 19 miles
Midnight			E N E	9	Strong gale High cross sea
Nov 4th			E N E.		Increasing gale and hard squalls High cross sea

Date and Hour.	Position.		Wind.		Weather.
	Lat. N.	Long. E.	Direction.	Force.	
6 A.M. . .	...	...	...	9—10	Hard gale; hazy weather, but no rain.
Noon . .	19° 45′ (Account).	86° 30′	E.-N.-E. .	...	Hard gale with hard squalls and a very high cross sea.
4 P.M. . .	...	...	E.-N.-E. .	...	Squalls heavier.
9 P.M. . .	...	...	...	11	Terrific squalls.
Midnight . .	...	...	E.-N.-E. .	11	Terrific gale, with a high confused sea.
Nov. 5th. A.M. . .	...	...	E.-N.-E. .	11	Cyclone increasing with terrific squalls.
1 A.M. . .	...	...	...	...	Cut away the foremast to ease the vessel. It took the main top mast and jibboom along with it. Shortly after the main mast went, taking mizen mast head, top mast and gaff along with it, smashing the boats rails and bulwarks, breaking two beams, bursting in the decks, etc., in fact leaving the ship a complete wreck.
3 A.M. . .	...	...	N. . .	12	Hurricane winds with tremendous sea.
4 A.M. . .	...	...	N.-W. .	12	Wind continued with unabated fury. Sea tremendous.
7 A.M. . .	...	...	S.-W. .	...	Wind decreasing and sea going down.
8 A.M. . .	...	...	S.-W. .	...	

The *Lady Agnes* began to experience strong cyclonic winds on the morning of the 3rd, when she was at least 350 miles to the north of the centre. She drifted westwards during the day near the South Orissa coast. On the morning of the 4th, when she was about 200 miles to the north of the centre, she experienced a hard gale with hard squalls. The centre on the 4th recurved through north-north-west to north-north-east and rapidly approached the ship *Agnes*. In the evening the wind had increased to a terrific gale from east-north-east. At 1 A.M. of the 5th, when the vessel was probably off the Ganjam coast, east of Gopalpur, it was necessary to cut away the foremast. She was nearest the centre between 3 A.M. and 4 A.M., at which time she had hurricane winds with a tremendous sea. She was then probably not more than 15 or 20 miles from the centre. She was carried rapidly under the force of the winds and storm currents from the west to the south-east quadrant of the cyclone, and was gradually left behind on the morning of the 5th. Hence weather rapidly improved, and she had moderate winds and fine weather on the afternoon and evening of the 5th.

The ship *Lady Agnes* was nearest to the storm centre between 3 and 4 A.M. of the 5th, when she was in about Lat. 19° 10′ N. and Long. 85° 20′ E., and hence the storm centre, which was about 15 miles to the east was in Lat. 19° 10′ N. and Long. 85° 35′ E. at that hour.

The following statement of the remarkable performance of the aneroid barometer on board the ship *Lady Agnes* deserves record:—

"Our aneroid barometer did not register right, as it only fell from 30·00 to 29·80 before the full force of the cyclone burst upon us, and during the six hours during which it raged at its utmost violence and with hurricane force our aneroid did not fall any more, but rose gradually to 30 inches, as the fine weather set in."

The following gives the observations taken at Gopalpur during the afternoon and night of the 4th and morning of the 5th:—

Observations at Gopalpur during the storm.

Hour.	Pressure. Actual reduced to sea level and Lat. 45°.	Wind. Direction.	Wind. Average velocity in miles per hour.	Rainfall since previous observation.	State of sea.	Weather.
				"		
4th. 11 A.M. . . .	29·695	N.	22	0·15	...	Squally.
2 P.M. . . .	·570	N.	28	0·55	...	Drizzling.
5 P.M. . . .	·539	N.-N.-W.	27	0·36	Tremendous.	Stormy, with heavy squalls.
8 P.M. . . .	·537	N.	25	0·36	...	Squalls more violent.
11 P.M. . . .	·474	N.	42	0·56	...	Gale.
5th. 2 A.M. . . .	·391	N.-N.-W.	37	0·28	...	Hard gale and squally.
5 A.M. . . .	·469	W.-N.-W.	32	0·46	...	......
8 A.M. . . .	·587	W.-N.-W.	25	2·84	Sea high.	.. ...

The observer reported that the calm centre passed over the station between 2 A.M. and 5 A.M., but this was evidently a mistake. The observations furnish no proof of the statement, and it is opposed to the data of the ship *Lady Agnes* and other vessels.

The Gopalpur observations indicate that the centre was to the east of that station between 2 A.M. and 5 A.M., of the 5th and probably about 3 A.M. or 4 A.M., at a distance of not more than 40 or 50 miles, and hence that its position at 4 A.M. of the 5th was most probably in Lat. 19° 15′ N. and Long. 85° 30′ to 85° 40′ E

The storm centre passed over False Point in the afternoon between 4 5 and 4 45 P M Two series of observations are available, one taken by the observer at the Light House and the other from the Port Officer In the former the pressure is obtained from the readings of a Casella's Fortin barometer the tube of which is 45 inch in diameter and *in the latter from an aneroid barometer The two positions* are about 6½ miles distant in a direct line The observations show slight discrepancies such as might be expected in comparing observations taken with a mercurial and an aneroid barometer

Observations of storm at False Point

The Port Officer, Mr Workman, was formerly Light House keeper and acted as observer for many years and hence so far as accuracy of observation is concerned the two series are *equal in point of value*

The following gives a complete statement of the two sets of barometric readings corrected —

Comparison of observations at the Light House and Port Office

Date and Hour	Pressure at		Wind at		Weather experienced at	
	Light House	Port Office	Light House	Port Office	Light House	Port Office
5th November 8 30 hours	29 5¸6	" 29 600	E	N E	Blowing a gale with heavy rain	Squalls with blinding sheets of *rain*
9	594	600	E	N E		9-15 a most terrific squall from E with blinding sheets of rain.
9-30	586	590	E S E	E	9 30 to 10-30, wind increased to a hard gale	
10	560	570	E S E	E		
10-30	5 6	540	S-E	E S E	Severe gale with blinding rain	Wind increased to hurricane with very severe squalls
11	512	540	E S E.	E S E.	Terrific squalls with heavy rain	Ditto
11 30	436	530	E S. E	E S. E.	Hard gale with blinding rain	Ditto
12 30	316	420	E S E	E S E	Clouds travelling at an enormous rate	*Ditto*
13	50	350	E S E	E S E		
13 30	156	300		E S E.		13 45 blowing a violent hurricane with most terrific squalls and blinding sheets of rain.
14	·030	210	S E	E S E.	13 to 14 30 wind blowing with hurricane force and blinding rain	Ditto
14 30	28 658	090	S E	E S E		Ditto.
15	356	28 590	S E	E S E	14-30 to 15 30 wind most terrific with blinding rain	Ditto.

Date and Hour.	Pressure at		Wind at		Weather experienced at	
	Light-House.	Port Office.	Light-House.	Port Office.	Light-House.	Port Office.
5th November. 15-30	″ *28·180*	″ *28·690*	S.-E.	E.-S.-E.	......	Blowing a most violent hurricane, with most terrific squalls and blinding sheets of rain.
15·45	·012	·590	E.-S.-E.	E.-S.-E.	Clouds not so dense. The barometer remained steady for a short time and ceased pulsating.	......
16	·084	·410	E.-S.-E.	E.-S.-E.	Blowing a moderate gale; rain decreasing; break in clouds.	16-12, wind suddenly lulled, and blew in heavy gusts.
16-15	·122	·260	S.-E.	E.-S.-E.	16-5 to 16-45, wind ceased, a dead calm followed by light variable winds, lasted until 16-45.	16-15 to 16-45, moderate breeze, with heavy overcast sky and thick rainy weather.
16-30	·166	·240	N.-W.	N.-E.	......	......
17	·180	·190	N.-W.	N.	Blowing a hurricane with blinding rain.	Strong breeze with heavy gusts and heavy overcast sky.
17-30	·486	·300	N.-W.	N.	Force of wind at this time was most terrific.	Wind increased to hard gale with heavy squalls and blinding sheets of rain. 17-40, blowing a violent hurricane, with most terrific squalls and blinding sheets of rain.
18	·796	·570	N.-W.	N.-W.	......	17-50 to 19, hurricane blowing with redoubled force and most terrific squalls and blinding sheets of rain.
19	29·078	29·000	N.-W.	N.-W.	Wind moderated a little; heavy rain.	......
20	·402	·240	N.-W.	W.-S-W.	Wind moderating and blowing a hard gale. Rain decreasing.	19 to 20 hours, wind moderating slightly, but still blowing with hurricane force. Squalls not quite so terrific.
22	·652	·570	N.-W.	S.-W.	Strong wind; rain nearly ceased.	20 to 22 hours, wind moderate to hard gale, with heavy squalls. 22 hours to midnight, wind moderated to a moderate gale with occasional squalls.

Date and Hour	Pressure at		Wind at		Weather experienced at	
	Light House	Port Office	Light House	Port Office	Light House.	Port Office
24	29 732	9 730	N W	S W	Wind decreasing Drizzling rain	Strong breeze weather cloudy and fine
4 A M		690		N W		Light winds, cloudy and fine
5 A M					Weather clearing up	

The barometric observations are charted in plate XVIII

These two accounts are very interesting and enable the position of the centre to be fixed in the afternoon of the 5th

Passage of the calm area over the Light House at False Point.

The central calm area passed over the Light House between 4 5 and 4 45 P M, and hence lasted 40 minutes As the storm was progressing at the rate of nearly 9 miles an hour, the greatest diameter in a north and south section was between 5 and 6 miles The Port Office was just on the outer western edge of the calm centre The Port Office bears north north east (*vide* Taylor's Directory) from the Light House As the storm was advancing in a direction between north east and east north east at this time, a simple mathematical calculation shows that under the given circumstances *viz* that the Port Office is 6½ miles to the north north east of the Light-House, and the calm area passed centrally in a north east direction over the Light House, the Port Office would be just without the calm centre Hence the data are in full accordance and indicate that the centre of the calm area passed over, or very near to, the Light House

Inferences from the observations taken during the storm at False Point.

These observations throw light upon several interesting features of cyclones The following are the most noteworthy points —

First —The passage of the calm central area over the Light-House lasted more than half an hour, and hence afforded ample time to test the pressure and air motion conditions in and near the calm area The calm lasted from 4-5 P M to 4-45 P M As described by the observer, the wind, which was blowing a moderate gale at 4 P M, fell to a dead calm at 4-5 P M The transition was hence abrupt, but less so than is usually indicated by the remarks in the logs of ships that have passed through the central calm area of cyclones. The dead calm was followed by light variable winds until 4 45 P M, after which the wind increased very rapidly and was blowing with hurricane force at 5 P M These observations hence indicate that the transition from the central calm to the hurricane winds just outside the central calm area is less rapid than is usually supposed, and that the change is rapid and gradual, rather than abrupt and spasmodic This is further confirmed by

the observations at the Port Office, which, as already stated, was on the edge of the calm area. The wind was blowing a violent hurricane at 3-30 P.M. It decreased rapidly at 4-12 P.M., and from 4-15 P.M. to 4-45 P.M it blew a moderate breeze. At 5-0 P.M. (when it was blowing a hurricane at the Light-House) the Port Office had only a strong breeze. The wind increased to a hard gale at 5-30 P.M., and at 5-40 P.M. it was blowing with hurricane force, accompanied with most terrific squalls. The interval between the setting-in of hurricane winds at the Light-House and Port Office was hence 40 minutes. This, taken in connection with their relative distance, enables the velocity of the storm at this stage to be estimated. This gives a velocity of 9¾ miles per hour, which coincides almost with the estimated average velocity of the previous 24 hours. It is hence a further proof (if any were required) of the care and accuracy with which the observations were taken.

Second.—The Light-House observations indicate that pressure was lowest in front of the calm centre at a distance of about 2 miles, as the lowest pressure (28·012″) was observed at 3-45 P.M., whereas the dead calm did not commence until 4-5 P.M.

The pressure also gradually increased from north to south across the longest diameter of the calm area.

The following gives the reduced observations :—

Hours.	Barometer reduced to 32°.	......	Weather Remarks.
3-30 P.M.	28·180	......	Hurricane winds.
3-45 ,,	·012	2 miles from calm area.	......
4-0 ,,	·084	¾ mile from calm area.	Moderate gale.
4-15 ,,	·122	......	Dead calm.
4-30 ,,	·166	Centre of calm area passing.	Light variable.
5-0 ,,	·180	Just outside calm area (about 2 miles.)	Hurricane winds.

One possible explanation of these changes is that the centre was filling up at this time. This appears, however, to be negatived by the fact that the pressure at 5-0 P.M. at the Port Office outside the calm area (28·19″) was almost identical with that recorded (28·18″) at the Light-House, just before and immediately after the calm central area passed over it, and also by the fact that the pressures in the calm central area on the following morning between 1 A.M. and 2 A.M., as observed on board the F. L. V. *Canopus* and the S. *Lena* were

nearly as low as those registered at the Light-House. It hence appears to be more reasonable to assume that the barometric readings in question indicate real variations of pressure at the same instant in and near the calm central area than that they were due to a slight partial filling up of the central depression during its passage over the land between False Point Light House and Port Office. On this assumption pressure was in this cyclone, when passing over False Point, lowest just in front of the calm area and increased along the longest diameter from north to south in the calm central area and was nearly a sixth of an inch higher just outside the calm area in the rear than in the front.

Third.—The observations show that excessively steep gradients obtained near the centre. Thus pressure at the Light House fell ·372″ between 2 P.M. and 2-30 P.M. and ·302″ between 2-30 P.M. and 3 P.M. The fall was most rapid between 2 P.M. and 2-30 P.M. or about two hours before the arrival of the calm centre. As this fall corresponded to the space passed over by the centre and storm in that time, the fall of pressure of ·372″ occurred over a distance of *about 4½ miles. The rate of fall of pressure with distance where the* gradients were steepest was hence almost certainly a tenth of an inch per mile. The observations at the Port Office give the greatest all as ·180″ which occurred between 3-45 P.M. and 4 P.M. and hence very nearly corresponded to the preceding, allowing for difference of position with respect to the centre. The most rapid increase of pressure occurred at the Light-House between 5 P.M. and 6 P.M. The rise was ·301″ between 5 P.M. and 5-30 P.M. and ·310″ between 5-30 P.M. and 6 P.M. Hence the greatest and most rapid fall of pressure occurred about 2 hours before the passage of the centre, and hence at a distance of nearly 18 miles in front of the centre, and the most rapid rise about one hour after the passage of the centre. The rate of greatest fall was considerably greater (nearly 25 per cent.) than the most rapid rise in the rear.

The previous are the most important conclusions from the data as to the distribution of pressure in the immediate neighbourhood of the storm centre.

The Light-House keeper sent the following report of the damage done by the storm at False Point:—

Damage due to storm at False Point.

. . . .

the windows. The gardens are spoiled, and three windows of the Assistant's quarters together with the front compound door, were blown off their hinges. Most of the trees are stripped more or less of their branches and some blown down. The centre of the storm passed over at 4 P.M., the calm lasting 45 minutes. The force of the wind at 12-30, when the anemometer was blown away, was 70 miles per hour

after which the wind blew with hurricane force. The direction of the wind during the passage of the first half of the cyclone was from east-north-east to south-east and from the latter north-west. The amount of rainfall during the passage of the storm was 7·02 inches. The water rose above the height of the bunds, so that the swamps are full, and whatever damage the sluice or bunds have sustained cannot yet be ascertained."

The False Point Port Officer added the following remarks to the observations which he forwarded :—

"I would also beg to say that this has been one of the most severe cyclones that I have experienced during my long residence of 26½ years at False Point. In fact, with the exception of the cyclone of September 1885, it has been the most severe, and fortunately for us the centre, which must have been very close, passed at low water, otherwise, I am afraid, we should have had a sadder tale to tell. As it is, the whole of the station, except the refuge building, is in ruins, but I am happy to say that no lives have been lost.

"The whole of the beacons marking the harbour have been blown away and Reddie Head Sand Spit has entirely disappeared. Yesterday afternoon I pulled across in my boat what used to be dry sand and found nothing less than 6 feet of water.

"I noticed that during the approach of the storm the pointer of the aneroid oscillated a good deal, jumping up and down fully one-tenth of an inch, and the same thing occurred when the storm was receding, but during the time the storm was passing it remained quite steady." At one time during the approach of the storm the pointer went as low as 28·08" with the oscillation. I have noticed a slight oscillation of two or three hundredths of an inch in other cyclones, but never to such an extent as in this one."

Observations of the storm at Shortt's Island.

The Light-House keeper of the Light-House on Shortt's Island at the entrance to the river Dhamrah (and in Lat. 20°47′ N. and Long. 86°50′ E.) took a most valuable series of observations during the storm. The station was about 16 miles to the north of the centre when nearest to it, and hence within the inner storm area of hurricane winds—

Date and Hour.	Barometer reduced to sea-level and constant gravity.	Wind.		Direction of cloud movement.	Weather.
		Direction.	Velocity in miles per hour.		
	"				
4th, 8 A.M. .	29·826	N.-E. by E.	...	...	Blowing a moderate gale with light rain.
10 ,, .	·812	N.-E. by E.	32		Fresh gale, light rain.
4 P.M. .	·682	N.-E. by E.	37	...	......
5 ,, .	·700	N.-E. by E.	49	...	Squalls, very frequent and violent.
10 ,, .	·620	N.-E. by E.	...	...	
5th, 4 A.M. .	·572	N.-E. by E.	...	N.	......
6 ,, .	·636	E. by S.	44	N.	......
8 ,, .	·678	E.-N.-E.	32	N.	Blinding rain.
11 ,, .	·588	N.-E.	40	N.	Terrific squalls.

Date and Hour.	Barometer reduced to sea level and constant gravity.	Wind. Direction.	Wind. Velocity in miles per hour.	Direction of cloud movement	Weather.
	″				..
5th, 1 P. M. .	29 510	E. N. E.	48	N	
2 ,, .	·480	N ·E.	40	N	Terrific squalls with hard rain
3 ,, .	·396	E. by S.	61	N	
4 ,, .	·340	E. by S	64	N	
5 ,, .	·218	E. by S.	..		5 to 10 P M, hurricane with incessant heavy rain.
6 ,, .	·138	E. by S.	..		
7 ,, .	·040	E by S.	...	.	
8 ,, .	·028	E. by S	...		
9 ,,	·050	E S E	..		
10 ,,	·150	E S.-E.			
11 ,, .	·410	N	...	...	
Midnight .	·500	N	...		
6th, 2 A M. .	·540	N ·N ·W.	...	.	
4 ,,	·592	N ·N. W.	...	...	
8 ,,	·732	N.-N ·W.		.	

The following is the account of the storm received from the Light-House Keeper:—

Account of the storm at Shortt's Island by the Light-House Keeper.

"*November 3rd.*—There was nothing in the appearance of the weather until noon of the 3rd to lead me to suspect that boisterous weather was approaching. At that hour a bank of black cloud began to form to the southward, the remaining portion of the sky being cloudless, but at 5 P M the sky was entirely overcast with fracto-cumulus cloud, which, at sunset, turned a dark dirty red, and then the weather rapidly assumed a threatening appearance. At 9 P M the first rain squall of moderate force struck the station from N ·E., which was followed by others of less strength until 11-0 P.M. From 11-0 P.M. to midnight there were no squalls, and in fact the weather cleared, looking fine all round, except between N -,N.-E.-,E. and S.-S.-E., where it had a threatening appearance.

"*November 4th* —From 0-10 to 3-30 A.M. rain squalls became frequent, weather looking very dirty; 3-30 to 6-0 A.M. blowing a moderate gale with light rain from N.-E. 7-40 to 8-0 A M. a strong squall with hard rain, wind hauled a point to the eastward. From 8 A M. to noon the weather cleared somewhat, but soon after became very wild-looking, and from 1-0 to 2-30 P. M. squalls frequent and increasing in violence wind steady, fresh gale; 3-0 to 4-0 P M. fresh gale, light rain, scud driving very fast; 4-0 to 5 P M. no change in the weather. All persons on the island took refuge in the tower. From 5-0 to 6-0 P.M. weather again became squally with rain, wind increasing; 6-0 to 7-0 P M. strong gale, squalls increasing in frequency and violence; 8-0 P.M. no change in the weather; 8-0 to 10-0 P.M. squalls very frequent and violent; 10 A.M. to midnight no change."

"*November 5th.*—From midnight to 6-0 A M. the squalls continued with unabated force and frequency, but the rain was not heavy during this time. During a lull which occurred between 6-0 and 6-10 A.M. the wind shifted to E. by S, followed immediately by a terrific rain squall. At 6-40 A.M. wind backed to N-E. During the lulls after the squalls the wind veered to E-N-E. and backed to N-E. on the approach of the next squall. 8-0 A M. no change in the frequency or violence of the

squalls; blinding rain prevailing. Between 8-0 and 9-0 A.M., after the squalls the clouds broke to windward, and after this the sky again became entirely overcast and squalls increased in violence; wind still unsteady. From 11-0 to 11-10 A.M. the sun shone brightly, the interval being between two squalls; afterwards the sky became overcast and very wild-looking, and squalls more violent with heavy rain. At noon I noticed that the sea-level had fallen about 4 feet in the space of about half an hour; no apparent change in the weather. From noon to 3-0 P.M. squalls one after the other in quick succession of terrific violence with hard rain. At 3-20 P.M. wind shifted to E. by S., squalls still most terrific. From 4-0 to 5-0 P.M. the appearance of the weather was most terribly wild; all persons took refuge in the light-house at this time. From 5-0 to 10-0 P.M. a hurricane from E-S-E. with incessant heavy rain and lightning; 10-10 P.M. weather suddenly moderated to fresh breeze, but gusty. At 10-50 P.M. the wind shifted to N., blowing a very strong gale but gusty with light rain and lightning. Barometer rising rapidly and pumping very much. Midnight no change."

"*November 6th.*—At 0·45 A.M. wind shifted to N.-N.-W.; no change in the weather, lightning vivid. 2-30 A.M. wind moderating in force, rain moderate. 3-0 to 4-0 A.M. wind and weather moderating, fresh gale, vivid lightning, no rain. 4-0 to 5-0 A.M. weather moderating, moderate gale, lightning not so vivid, no rain. 5-0 to 6-0 A.M. clouds broke to the S.-E., weather moderating quickly, fresh breeze, fine. *Daylight,* observed that the cups of the anemometer had blown away during the night, the instrument having stopped at 323·2 miles; all the other instruments in good order, but very dirty."

"The violence of the storm was such as to shake the light-house visibly; a great portion of the iron roof of a godown was torn off and hurled away about 100 yards into the sea; doors of the dwelling-houses were torn off at their hinges, and the mound on which the houses and godowns are built was ploughed up by the rain. The island was inundated by the sea to within 5 yards of the toe of the mound."

The preceding discussion has given a series of positions of the centre of the cyclone during the day—

Day.	Hour.	Position of Centre.			Distance passed over.	Rate of motion per hour.
			Latitude, N	Longitude, E		
			° ′	° ′		...
5th	4 A.M.	50 miles east of Gopalpur.	19 25	85 40	...	...
	8 A.M.	15 miles east of Puri	19 45	86 5	35 miles .	8·8
	4.20 P.M.	False Point . .	20 20	86 47	65 miles .	7·8
	9 P.M.	20 miles east of Shortt's Island.	20 45	87 15	32 miles.	6·9
						12·6
6th	2 A.M.	Sandheads . .	21 15	88 4	63 miles.	

6th November. (Plate XIII.)

6th November.—The barometric changes of the previous 24 hours were irregular in character and small in amount, except in the area affected by the advance of the cyclonic storm. Pressure was increas-

ing more or less rapidly in the centre and north of the Bay, and, in Orissa and Ganjam, and was falling rapidly in Bengal, more especially East Bengal, towards which the storm was now advancing

Weather conditions in India.

The various observations indicate that the centre had continued to recurve slowly during the night of the 5th, and at 8 A M of the 6th it was crossing the coast of the Sunderbunds some distance to the east of Saugor Island and marching in an east-north-east direction

8 A M observations at land stations in the storm area

The following gives the 8 A M. observations at stations in and near the storm area —

Station.	Barometer.			Wind.		Cloud proportion	Rainfall in past 43 hours
	Actual reduced to sea level and constant gravity	Change since 8 A M previous day	Variation from normal	Direction	Average velocity in miles per hour		
	"	"	'		m		
Gopalpur	29 712	+ 205	— 109	N N W	8	1	Nil
False Point	768	+ 197	— 154	W	9	8	7 02
Shortt's Island	* 769	+ 058	?	N N-W	9	7	8 50
Saugor Island	650	— 127	— 279	N N W	27	10	3 18
Calcutta	722	— 107	— 211	N N E.	18	10	0 49
Jessore	757	— 080	— 142	N E	8	10	0 15
Dacca	825	— 061	— 100	N L	7	10	0 10
Silchar	888	— 033	— 038	Calm	1	10	0 12
Chittagong	823	— 054	— 097		2	10	0 11

* Reduced to 32° F. only

Skies were now overcast over the whole of Bengal and Assam and also in South Bihar and Chota Nagpur. They were partially clouded on North Bihar and the eastern districts of the North-Western Provinces, and were clear over the whole of North-Western and Central India

Very heavy rain had fallen in Orissa during the previous 24 hours. The following gives the largest amounts registered at 8 A.M. of this day for the previous 24 hours —

District.	Station	Date	Amount in inches.
Puri	Puri	5th	13 61
	False Point	6th	7 02
	Gop	6th	14 20
Cuttack	Jagatsingpur	6th	6 30
	Kendrapara	5th	6 41
	Kendrapara	6th	9 50
Balasore	Chandbali	6th	7 92

The following statement gives an analysis of the rainfall of the previous 24 hours in Bengal, Orissa and Ganjam :—

District.	Average rainfall of previous 24 hours.	Heaviest rainfalls in district in previous 24 hours
	Inches.	Inches.
Madras (East Coast North) .	0·02	
Orissa	3·18	100 at Gop. 9·50 at Kendrapara. 7·92 at Chandbali. 7·02 at False Poitn.
Bengal (South-West) . .	0·60	
Do. (East) . . .	0·38	
Do. (North) . . .	0·36	
South Bihar	0 06	
Chota Nagpur . . .	0·14	

Position and character of storm at 8 A.M.

The chart giving the 8 A.M. distribution of pressure of this day (Plate XIII) shows that the storm centre at that hour was due east of Saugor Island, at a distance of between 30 and 40 miles.

The observations appear to indicate that the storm was already beginning to break up. Strong winds were blowing at Saugor Island and Calcutta, nearest to the centre. These stations occupied the same position at this time relative to the centre that Gopalpur had done about 24 hours previously. The winds at these stations at 8 A.M. were very much feebler than at Gopalpur, their velocity being not more than one-half or one-third that at Gopalpur on the previous morning, when it was nearest the centre. The winds at Barisal, Dacca and Jessore in East Bengal in the north-eastern quadrant, were comparatively feeble, and Barisal reported a calm at 8 A.M. The wind directions were also somewhat abnormal.

4 P. M. observations in storm area.

The disintegration of the storm proceeded rapidly during the day. The following gives 4 P.M. observations at seven stations, the 8 A.M. observations of which are given in the preceding table :—

Station.	Pressure (4 P.M.).			Wind.		Cloud proportion.	Weather.
	Actual reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity 10 A.M. to 4 P.M. in miles.		
	"	"	"				
False Point .	29 743	+·699	—·080	E	?	10	Overcast.
Shortt's Island *	·637	+·074	?	N	15	9	
Saugor Island .	·710	+·047	—·108	N. N. W.	26	9	Very ugly.
Calcutta .	·704	—·015	—·116	N. N. W.	12	10	Overcast.
Dacca .	·689	—·092	—·122	N. N. E.	11	10	Gloomy.
Silchar .	·781	—·038	—·022	Calm	1	10	Overcast.
Chittagong .	·707	—·075	—·110	S. S. E.	6	10	

* Reduced to 32° F. only.

These observations indicate that the centre was a little to the south east of Dacca. They also show that the storm was fast filling up, and that it was now a very shallow diffused depression of little importance.

Light winds prevailed at Chittagong and Silchar and moderate winds at Dacca Skies were overcast over the whole of Bengal with the exception of the northern districts, and light to moderate rain was falling in South and East Bengal.

The preceding observations have shown that the storm centre at 8 A M was about 35 miles to the east of Saugor Island and at 4 P M was a little to the south-east of Dacca As it had passed over False Point between 4 P M. and 5 P M. of the preceding afternoon, it advanced across the north-west angle of the Bay during the night. The light vessels and pilot vessels and a number of vessels which had arrived at the Sandheads during the previous 48 hours, and were cruising about, waiting for the bad weather to pass away in order to obtain pilots and proceed up the river to Calcutta, were all involved in the storm during the night and experienced hurricane winds and a tremendous sea.

Advance of storm across the Sand heads on the early morning of the 6th

The P. V *Coleroon*, which had passed through nearly every cyclonic storm of the previous 20 years, foundered during the night off the Orissa coast

The following gives an account of the weather experienced by several of the vessels which encountered the storm during the night

The storm centre passed over the F L V. *Canopus* at 2-30 A M. of the 6th She was stationed at the *Intermediate Station* (Latitude 21° 14′ N and Longitude 88° 11′ E) 30 miles to the S -S -E. of Saugor Island.

The following gives the barometric and wind observations recorded on board that vessel during the storm —

Observations of storm taken on board the F L V *Canopus*

Date and Hour.	Barometer corrected and reduced to sea level and constant gravity	Wind.		Weather
		Direction.	Force.	
5th, 6 P M	29·710	E.	9	Hard gale.
" 7	·724	S E	10	
" 8	·712	E S E	9—11	
" 9 "	·706	E -S E	12	Hurricane.
" 10 "	·684	E -S E	12	Ditto.
" 11 "	·660	E S E	12	Ditto.
6th, Midnight	·730	E S E	12	Ditto
" 1 A M	·430	E.-S E	12	Ditto.
" 2 A M	·014	E. S.-E.	12	Calm at 2·30 A.M Lasted for 3 or 4 minutes
" 2·30 A.M	28·60	N W	12	Hurricane
" 4 "	29·100	N W	9	

Captain Beahen describes the weather he experienced as follows:—

"On the morning of the 4th there was a moderate southerly swell, but the wind was unsteady, veering from north-east to east, and the weather looking very threatening and squally to the south-east; during the day the wind increased to a fresh easterly gale, and the sea became heavier.

"The 5th commenced with a brisk easterly gale and high sea, but as the day advanced the wind increased in force, the sea became more confused, and the blinding heavy rain squalls more frequent. By 4 P.M. it was blowing a hard gale, wind veering from east to east-south-east in the squalls, and at 10 P.M. it had settled and remained steady at east till 2-30 A.M. on the 6th, when it suddenly fell calm, the calm lasting not more than from 3 to 4 minutes. At this time the wind shifted suddenly into the west-north-west and blew with terrific force. In all my experience at the Sand-heads during the last 16 years, I have never seen anything like the heavy rain, thunder and lightning, terrific sea and force of the wind that we experienced in this storm.

"From 10 P.M. on the 5th to 3-30 A.M. on the 6th it was blowing with most terrific force, and the sea very high and confused. At 2-20. A.M., just before the centre passed over us, the vessel heeled over to starboard, putting main and other hatches in the water. We then parted a 20-inch coir cable, and were driven from our station. We remained in the above position, vessel heading east-south-east till 3-30 A.M.; the terrific sea sweeping over us. When it moderated I brought the vessel up, and at daylight found myself near the South Channel, being 18 miles south-west off my station. I observed a number of wrecks of vessels floating about bottom up, and in pieces, and the sea covered with wreckage.

Advance of storm centre over F. L. V. *Star.*

"The storm centre also passed over the F. L. V. *Star* stationed at the *Lower Gasper Station*, Lat. 21° 26′ N., Long. 88° 6′ E., about 10 miles from the *Intermediate Light Ship*. The captain sent in the following report of the storm:—

4th.—"Wind E.-S.-E. to east and squally. Force 6 to 8.

5th.—"Wind easterly and squally. At 9 P.M. a very heavy squall from east, with torrents of rain (which may be taken as the commencement of the hurricane following a few hours after). Squalls increased in violence until midnight, by which time a terrific hurricane had developed itself with a dangerously heavy sea running.

6th.—"The hurricane continuing with unabated fury until 6 A. M., when sea and wind commenced to moderate. About 3 A.M. of the 6th the calm centre passed over the vessel, the calm lasting about 10 or 15 minutes, after which the wind flew into north veering to north-west. At 10-30 P.M. of the 5th the ship parted from her coir cable, but was brought up with the second anchor and 90 tons cable coir, after drifting off her station about 2½ miles."

Observations of storm of ship *Lena.*

As already stated, the ship *Lena* passed through the eastern quadrant of the cyclone on the 3rd. She continued on the 4th and 5th to advance on a northerly course up the Bay, and had strong breezes, with occasional squalls and rain and very unsettled weather. At 5 P.M. of the 5th, she sighted the Mutlah Light vessel (60 miles south-east by east from Saugor Island). At 7 P.M. she sighted the Eastern

Channel Light vessel and anchored at 8 P M 2 miles to the north west by west from that vessel The following gives the account of the weather experienced during the next 24 hours as recorded in her log —

Date and Hour	Barometer		Wind		Weather and Sea
	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force	
5th	"	"			
1 P M	30 20	9 70?			
9 P M					
10 P M	Barometer falling				
					High cross sea running and breaking over the vessel, ship dragging
6th					
0-30 A M	28 70	?			
1 A M	28 35	?		..	Wind increased to hurricane sea and sky literally mingled together Decks one mass of water and wreckage The wind shifted suddenly to the north and west causing the ship to lay right over the starboard side Weather getting worse with a fearful appearance expecting every moment the ship to take the ground as she was still dragging At last the Captain ordered the foremast to be cut away and this eased the ship and undoubtedly saved all on board
1 15 A M	28 00	?	W	12	Wind coming in irresistible gusts in rapid succession and roaring fearfully
1 30 A M		?	..		Barometer beginning to rise a little
2 A M	28 35	?		..	Wind appearing to ease a little.
3 A M	28 70	?	..	...	
3 30 A M	9 00	?		..	Wind abating
4 30 A M	29 30	?			Wind blowing a strong gale
5 30 A M		?			Sky clearing slightly

This vessel was just outside the calm central area which passed a little to the north of the vessel It will be seen that it fully confirms the account of Captain Beahen as to the excessive violence of the storm

The readings of the aneroid on board the *Lena* on the early morning of the *6th* are *almost certainly wrong* The observations appear to indicate that the *Lena* did not pass through the calm centre but must have been very near to it, as she experienced the most violent winds which are described as coming "in irresistible gusts in rapid succession" She was nearest the centre between 1 A M and 2 A M, and the lowest recorded reading at 1 15 A M is given as 28 00" The

reading at 1 P.M. of the 5th is undoubtedly nearly half an inch too high. The lowest reading was probably nearly correct or a little too low, but it is not possible to suggest what it should be. The vessel was probably in the eastern quadrant at midnight and passed into the southern quadrant, and hence encountered the strongest winds in the inner storm area.

torm observations of e ship nne Main.

The ship *Anne Main*, after passing through the eastern quadrant of the cyclone on the 3rd, advanced northwards towards the Hooghly, and encountered the full strength of the storm on the night of the 5th and early morning of the 6th. The following extract from her log shows fully the character of the weather she encountered on the night of the 5th:—

Date and Hour.	Position.		Barometer.		Wind.		State of sea.	Weather.
	Latitude, N.	Longitude, E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
4th.			"	"				......
4 A.M.			29·75	29·82	S.-E.	...	...	
8 A.M.			29·78	·85	E.	...	...	Weather very gloomy and overcast with ugly appearance.
Noon	E. Channel Lightship bearing W by N. about 12 miles.		29·74	·81	E.	...	...	......
2 P.M.	...	...	...	...	...	...	...	Anchored about 6 miles from Eastern Channel Lightship.
4 P.M.	...	...	29·68	·75	...	...	...	Fresh gale with hard rain-squalls.
8 P.M.	...	...	29·73	·80	...	8	High ..	Strong wind with very hard rain-squalls.
Midnight.	...	...	...	...	E.-S.-E.	9	...	Heavy rains and vivid lightning.
5th.								
4 A.M.	...	...	29·66	·73	...	...	Less sea	Very gloomy and overcast with less wind.
8 A.M.	...	...	29·66	·73	...	..	Less sea	Dark and threatening with less wind.
Noon	About 15 miles from Lightship		29·50	·57	S.-E.	...	...	Wind freshening and coming in strong gusts and squalls of rain.
1 P.M.	...	...	...	...	S.-E.	...	High and rising.	Strong gale from south-east, sky, having a wild and threatening appearance.
4 P.M.	...	...	29·40	·47	...	...	...	......

Date and Hour.	Position.		Barometer.		Wind.		State of sea.	Weather.
	Latitude, N.	Longitude, E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
			"	"				
6 P.M.	...	...	...	...	...	...	High.	Very hard gale with *heavy rain.*
8 P.M.	...	...	29·26	29·33	...	...	Increasing sea.	Wind increasing. Hurricane with terrific squalls of wind and blinding rain. Wind beginning to back to the east.
11 P.M.	...	...	·00	·07	N.-E.	...	..	Blowing a whole hurricane with squalls of terrific force and blinding rain. Lightning flashing in sheets of vivid flame and much thunder. Wind abeam and ship unmanageable lying with leeside under water. Ballast shifted. Squared the yards to ease the ship. Found it necessary to cut away the mizenmast and main-top gallant mast and all gear. Mizen lay across the rail doing much damage.
Midnight.	...	...	28·80	28·87	N.	..	...	Hurricane seemed to reach its highest degree of violence; ship drifting at the mercy of the gale. During this terrific burst the ship lay over very dangerously with leeside under and deck full of water. Sea literally falling in heaps around us. Afterwards beginning to take off barometer, having reached to 28·80". First rise of barometer about midnight one-tenth; afterwards going up rapidly.
6th.								
2 A.M.	...	...	29·30	29·37	W.-N.W.	...	Sea falling quickly.	Wind taking off and squalls lessening in violence.
4 A.M.	...	...	29·50	·57	S.	8	...	Gusty weather; still overcast and cloudy.
8 A.M.	...	...	29·70	·77	S.	4	...	Fine.
Noon	20° 3′	87° 42′	29·70	·77	S.	2	...	Fine and clear.
4 P.M.	...	...	29·72	·79	N.-W. by N.	2	...	Fine.
8 P.M.	...	...	29·76	·83	N.-N.-W. ½ N.	2	...	Fine.

The *Anne Main* was near the Eastern Channel Lightship at noon of the 5th. The barometer began to fall quickly at 8 A.M. and winds increased rapidly, and at 8 P.M. was blowing a hurricane. She continued to experience hurricane winds until about 1 A.M. of the 6th. The squalls are described as of terrific violence, and the lightning unusually vivid. The lowest reading of the barometer was 28·87″ at midnight. She passed rapidly from the west through the south to the eastern quadrant of the storm between midnight and 4 A.M., but was apparently at some distance from the centre at that time.

The logs of the *Lena* and *Anne Main* show a very rapid improvement of the weather in the early morning of the 6th, due in part to the commencement of the disintegration of the storm as it approached the coast.

Advance of storm over S.S. *Lincolnshire.*

The S. S. *Lincolnshire* passed through the inner storm area on the early morning of the 5th. The account of the storm as given in log is as follows :—

Date and Hour.	Position.		Barometer actual.	Wind.		Weather.
	Latitude, N.	Longitude, E.		Direction.	Force.	
5th. 4 A.M.	...	...	″ 29·78	E.	6	Moderate gale; heavy rain squalls; sea confused.
8 A.M.	...	...	·78	E. by S.	...	......
Noon	20° 58′ (by account).	88° 15′	·70	E. by S.	...	......
4 P.M.	...	...	·68	S.-E.	...	Strong increasing gale and very heavy rain squalls. Barometer falling steadily, heavy confused sea. 4·30 P.M. Squalls becoming more violent.
8 P.M.	...	...	·60	S.-E. by S.	...	Strong increasing gale, heavy confused sea.
10 P.M.	...	...	·45	S.-E. by S.	...	Gale increasing and sea getting more confused.
6th. Midnight	...	...	·40	S.-E. by S.	...	Heavy gale and fierce rain-squalls, wind veering to S.
1 A.M.	...	...	·30	...	...	Terrific rain squalls.
1·30 A.M.	...	...	·10	S.-S. E.	...	Blowing a hurricane with terrific rain squalls.
2 A.M.	...	...	28·95	S.	...	Shipped tremendous sea.
2·30 A.M.	...	...	29·00	...	...	Wind slightly easier.
3 A.M.	...	...	·10	S.-W.	...	Weather slightly improved, very heavy confused sea and terrific rain-squalls.

Date and Hour	Position: Latitude N	Position: Longitude E.	Barometer actual	Wind: Direction	Wind: Force.	Weather
4 A M •			29" 25	S W		Less wind and squalls less fierce
6 A M •			40	W		Wind and sea moderating
7 A M •			50			Clear weather
Noon			55			Sighted East Channel L V
4 P M			60	N N W	2	

The S S *Lincolnshire*, as the *Lena*, was in the eastern quadrant at midnight and passed into the southern quadrant before 3 A M The probable correction of her barometer is — 09". The lowest reading during the storm corrected was 28 86" She was hence at some distance from the calm centre (5 to 10 miles), but experienced a hurricane, with terrific rain squalls when nearest

Advance of storm over S S *Regulus*

The S S *Saint Regulus* was 10 miles south of the Eastern Channel Light vessel at noon of the 5th The weather she experienced during the night of the 5th is given in the following extract from her log —

Date and Hour	Wind: Direction	Wind: Force.	Weather
5th			
4 A M	E S E	8	Fresh gale and hard squalls with very heavy rain
8 A M •	E S E	6	Strong breeze and heavy rain
Noon	S E	7	Moderate and high cross sea
4 P M	S E	8	Fresh gale and high cross sea from S W and S E
8 P M	S.S E.	8	The same weather as before
6th Midnight	S	12	Gale increasing to hurricane Sea very high.
1 A M			Passed the centre of the cyclone Barometer steady Squalls very hard and very heavy rain
4 A M •	W S W	9	Strong gale and high cross sea.
5 A M			Gale moderating, sea going down
8 A M	W S W	7	Moderate gale and cloudy
Noon	W S W	6	Strong breeze

The observations of the S S *Regulus* are unsatisfactory, as they do not give the readings of the barometer She was in the eastern quadrant at midnight and probably passed through the calm area a little south of the centre into the southern quadrant

Observations of storm of S.S. *Japan.*

The S.S. *Japan* passed through the inner storm area at a di[stance]ance of from 20 to 30 miles from the storm centre—

Date and Hour.	Barometer, actual.	Wind.		Weather.
		Direction.	Force.	
5th.	"			
4 A.M. .	...	E.	...	Hard squalls with continuous rain.
8 A.M. .	30'00	E.	...	Fresh breeze.
Noon . .	29'98	E.	...	Cloudy. Hard squalls, and high sea from E. S.-E.
1 P.M. .	...	S.-E.	...	Hard squalls and continual heavy rain. Sea rising.
3 P.M. .	...	...	...	Eastern Channel light vessel 7 miles N.-N.-W. Stood S.-E. by S., as there was not sufficient water to enter the river.
6 P.M. .	'70	S. S.-E.	...	Overcast.
8 P.M. .	'50	S. S.-E.	5 to 6	Sea high, light vessel visible.
10 P.M. .	'50	S. by E.	6 to 7	Sea heavy.
6th.				
Midnight .	'20	S		......
2 A.M. .	'25	S. S.-W.	10 to 11	......
2-20 A.M.	'20	S.-W.	10 to 11	......
2-45 A.M.	...	...	...	Barometer jumping.
3 A.M. .	'23	...	...	Ditto.
3-15 A.M.	'25	...	...	Wind veering.
3-45 A.M.	'25	...	...	Wind veering to westward gradually.
4 A.M. .	'40	W. S.-W.	8	......
5 A.M. .	'50	W.	6 to 7	......
6 A.M. .	'60	W.	5 to 6	......
6-20 A.M.	'68	W.	4 to 5	Weather moderating and clearing.

Observations of storm of ship *Bann.*

The ship *Bann,* which encountered the storm on the 3rd, again passed into the storm area on the night of the 5th. Her observations, given below, show that she did not enter within the inner storm area of winds force 10 to 12.

Date and Hour.	Position.		Barometer actual.	Wind.		Weather.
	Latitude, N.	Longitude, E.		Direction.	Force.	
5th.			"			
4 A.M. . .	...	...	29'80	S.-S. E.	4	Moderate breeze with rain.
Noon . .	19° 48′	90° 49′	...	S.-S. E.	6	Strong breeze, squally with rain.
4 P.M. . .	...	...	'70	S.	...	Very hard squalls with rain.
8 P.M. . .	...	...	...	S.	6	Very strong breeze and had squalls.

E AND OUR.	Position.		Barometer actual.	Wind.		Weather.
	Latitude N.	Longitude, E.		Direction.	Force.	
5th.						
. .	...	...	...	...	9	Strong gale sprang up suddenly with heavy sea from south-west. Barometer falling very fast.
. .	... ...	...	29·60	S. by W.	9	Do.
. .		...	...	S.	9	Very strong gale and heavy sea, with furious squalls and rain.
. .	21° 09'	89° 44'	...	S.-W.	...	Gale and sea still very heavy.
. .	...	...	·74	W	7	Gale moderating and sea going down.
. .	...	...	...	W. by S.	2	Light breeze and cloudy.

ugor Island was about 45 miles to the *north* of the centre of the when it was nearest to that station. The following gives a ary of the observations taken by the observer at that station g the storm:—

Observations at Saugor Island.

UR.	Barometer, corrected and reduced to sea-level and constant gravity.	Wind.		Lower clouds moving from	Condition of sea.	Weather.
		Direction.	Velocity in miles per hour.			
	"					
.M. .	29·777	E.-N.-E.	15	...	...	Drizzling.
.M. .	·759	E.-N.-E.	...	S.-E.	Rough.	......
P.M. .	·681	E.	16	S.-E.	Rough.	......
P.M. .	·677	E.-N.-E.	18	E. S.-E.	Slight.	Squally.
P.M. .	·613	E.-N.-E.	16	...	...	Squally with rain.
P.M. .	·563	E.-N.-E.	21	E. S.E.	...	.. ...
A.M. .	·497	E.-N.-E.	39	...	...	Squally.
A.M. .	·518	N.	77	...	...	Raining.
A.M. .	·650	N.-N.-W.	...	...	Rough.	......
		N.	7			
A.M. .	·713	N.-W.	24	N.-W.	...	Fine weather with passing clouds.
P.M. .	·693	N.-N.-W.	28	N. N.-W.	Slight.	

he centre was nearest to Saugor Island in the early morning, bly between 5 A.M. and 8 A.M., but as the storm began to fill uring the night of the 5th, the lowest pressure was observed en 2 A.M. and 5 A.M. The 8 A.M. distribution of pressure and wind directions, as shown in the chart of the day, establish that entre crossed the coast of the Sunderbunds about 30 or 40 miles of Saugor Island between 7 A.M. and 8 A.M.

The following observations, taken on board the S. S. *Canara* at anchor in the river near Saugor Island, give fuller data of the ier during the night of the 5th than the preceding observations,

and are interesting as showing that the storm appeared to fill up rapidly between 3 A.M. and 8 A.M., during which time the distance of the storm centre from Saugor Island ranged between 30 and 50 miles.

DATE AND HOUR.	Barometer reduced to sea-level and constant gravity.	WIND.		Weather.
		Direction.	Foce.	
November 5th.	"			
4 A.M. . .	29·72	E.	...	Fresh breeze and cloudy overcast weather.
8 A.M. . .	77	E. N.-E,	...	Light breeze and overcast. Occasional slight rain.
Noon . .	·73	E. by N.	...	Moderate breeze and overcast.
4 P.M. . .	·68	E. by S.	...	Moderate breeze and cloudy overcast weather, Rain.
8 A.M. . .	·70	E. N.-E.	...	Steady Moderate rain and moderate to light breeze, and overcast.
10 P M . .	·67		...	Squally with rain; moderate strong breeze, raining throughout; overcast and cloudy.
11 P.M. . .	·62		...	......
6th.				
Midnight .	·58	E. by N.	...	......
1 A.M. . .	·56		...	1-15. fresh gale blowing with force; squalls at times accompanied with driving rain.
2 A.M. . .	·51		...	2·30, strong gale with very heavy squalls and much lightning.
3 A.M. . .	·46		...	Shift of wind N.-N.-E. and at 3.30 A.M. to north.
4 A.M. . .	·49	N. by W.	...	Strong gale with heavy squalls at times.
6 A.M. . .	·58		...	......
8 A.M. .	·66	N.-N-W.	...	Thick gale and cloudy.
Noon . .	·68	N.-W.	...	Fresh breeze and fine clear weather.
4 P.M. . .	·73	N.-W.	...	......
8 P.M. . .	·80	N -W.	...	Moderate falling breeze and fine.

Account of the storm as observed by Mr. Elson near Saugor Island.

The following account of the storm as observed by Branch Pilot Mr. Elson, a most careful observer of the phenomena of cyclonic storms, is given *in extenso* :—

"At 7 A.M. of the 4th of Noemberv we started down the river bound for the Sandheads on board the S.S. *Dalhousie*, with an unpromising aspect aloft in the sky, which was gloomy and lowering; the cloud forms every now and then assuming most fantastic arrangements. There were mare's tails, mackerel sky, tufts of cumuli, and lines of stratus, all jumbled up in confusion. The cloud form struck me as ominous of stormy weather, more especially the long straight, lowish outshoots from the darkening jumble running nearly N. and S., jagged like the backbone of a herring, a form often seen before hailstorms. The rapid changes seen to take place showed plainly that the air currents were in active motion up above. A cool damp easterly wind was blowing. At Budge Budge we were somewhat startled to see No. 5 weather signal hoisted. The weather aloft seemed to be growing worse as we proceeded rapidly down the river. Still, on we went down south, passing Diamond Harbour and Mud Point, at both of which the storm signals were displayed, and the air had grown damp, while now and then a spitting of rain was brought along with the fresh N.-E. wind now blowing.

"On nearing Saugor Roads we found four large steamers at anchor, whom the storm signals had evidently detained (the No. 8 signal was by this time shown), among which was the P. and O. steamer *Bengal* bound for England. We also anchored there, but at the time, from the total absene of any breakers on the

sands, or on the beach, the small wind force, and high barometer, we began to think that perhaps the weather at the head of the Bay was not so bad as to justify No 8 storm signal, but still from former experience of the correctness of the signals hoisted by the Calcutta Meteorological Office, we waited patiently the course of events' watching the barometer, wind force and direction, and also the movements of the cloud strata aloft, which always showed the true cyclonic nature, each *higher strata coming more and more from the right of the surface wind direction* But at 5 P M our interest in the storm received a fresh impulse, for the storm signal No 8, which indicates a storm passing inland below False Point, was hauled down, and No 3 hoisted, meaning that a severe cyclone was passing inwards between False Point and Saugor. This we knew meant mischief but we had to make the best of a bad bargain, and so prepared the vessel for some hard riding There was some vivid lightning to the northward and eastward at 7—8 P M, and ever since we anchored it had rained, with a N E. wind, which was only of moderate force, yet the sky denoted much wind aloft and all round seawards

"Thursday, the 5th, at daybreak the sky looked very wild, but still very little swell such as the very ugly sky seawards would lead one to look for The wind during the day veered from N N-E. to as far as E. by N in the driving rain squalls, and all day long the same No 3 signal remained hoisted at Saugor Light House signal station.

"A somewhat remarkable and sudden shift of wind took place at 7 P M The wind which had been about N E all at once blew in a vicious S E. squall with heavy rain and lightning, and after about 15 or 20 minutes it suddenly fell calm for about two hours, it then freshened and blew in hard gusts from N N E. while vivid flashes of lightning lit up the heavy pall overhead The barometer fell two-tenths during these hard puffs These backings and veerings of the wind certainly pointed to eddies in the storm system, which have not been made clearly evident by any laws of storms yet brought forward Probably they indicate a sort of double or twin whirl

"Friday, 6th November, the wind gusts and heavy rainfall which prevailed from 11 P M. to 1 A M gradually abated, so that by 8 A.M, with wind N by W strong, with long low lines of driving cumuli and rack, the breaks and rifts which I observed in the S W had made sure way up towards the zenith, and the sun came out in all its glory, drying up the decks and all the wet awnings, while the heavy, well defined olive coloured cyclone bank shrank rapidly inland into smaller and smaller dimensions, settling down in the N E. quadrant.

"At noon, the weather having cleared up nicely, with moderate N N W wind we weighed and proceeded slowly down Saugor Roads. At about 2 P M. there arose a suspicious bank out of the S. E, which at one time made us think we were in for a repetition of last night's hard weather, and thought of going back again to Saugor; but just then, making out that the Lower Gasper Light vessel was off her station and at anchor near the Gasper Sand, Captain Samson went to the light vessel's assistance, and towed her into position at 7 P M.

"Saturday, 7th November, at 6 A.M we arrived at the Pilot station and I got on board the *Fame* Pilot vessel, which vessel was clean swept with nothing standing and no boat. The *Resolute* towed the Eastern Channel Light-vessel into position, which had driven about 6 miles S. E. off her riding station. This vessel experienced the wind at E. S E, but it suddenly shifted to W, and blew a hurricane, parted the cable, and threw the vessel on her beam ends, so as to drown all her live stock. The Intermediate Light vessel was, like the *Lower Gasper* driven in a S W. direction, but she picked herself up 17 miles away, while this

vessel, the *Fame*, not more than 10 miles west of the Eastern Channel Light experienced first a N. E. and easterly winds to S. E. The ship *Matterhorn*, lying at anchor near the E. C. light, awaiting orders, drove to the W. N. W. across the Eastern Sea reef, but is all safe."

Weather at Chittagong on 5th and 6th.

The following account of the weather experienced at Chittagong on the 5th and 6th was received from the Port Officer:—

"The weather for the two previous days had been suspicious, sky overcast, and from time to time drops of rain fell, but no showers and the wind veered from south to east. On the morning of the 6th the wind was from south-east at 2 A.M., a heavy bank of cloud rose to the south-west, but dispersed towards daylight, and the wind became gusty with slight showers of large drops of rain. The wind continued throughout the day from the south-east, and a few smart showers of rain fell. In the afternoon the weather became clearer and wind moderated, but at 7 P.M. a heavy shower of rain fell, the wind backed to the east, and came in heavy gusts which increased in intensity until 1 A.M. of the 7th when the weather gradually cleared.

"A heavy swell from west-south-west came up on the 6th outside the Bar. No damage was done here."

"The following table gives the actual and reduced readings of the barometer at various times throughout the day (6th):—"

Hour.	Actual.	Actual, reduced to sea-level and constant gravity.
	"	"
8. A.M.	29·990	29·823
10 A.M.	·960	·793
11 A.M.	·920	·753
Noon	·890	·723
4 P.M.	·870	·703

Inference from the preceding observations.

The preceding observations show that the storm centre crossed the north-west angle of the Bay during the night of the 5th, and early morning of the 6th, and passed into Bengal between 7 A.M. and 8 A.M. of the 6th. It thence advanced in an east-north-east direction across South Bengal, and at 4 P.M. was about 40 miles south-east of Dacca. It has also been shown that the storm filled up rapidly during the day. This was, as might be expected, accompanied with a rapid improvement in the weather over the whole Bay area and by a large decrease in the general indraught of southerly humid winds in the south of the Bay to the storm area in Bengal.

Weather in the Bay of Bengal on the 6th.

The following gives 8 A M. observations taken on board vessels in the Bay on this day —

Ship	Position		Barometer.		Wind		Sea.	Weather
	Latitude.	Longitude.	Actual	Corrected & reduced to sea level and constant gravity	Direction	Force		
	° ′	° ′	"	"				
S. *Glenricht*	11 15	90 9			S S W	1		Fine clear weather
S *Garnet Hill*	11 45	94 45			S.	1	Smooth	Passing showers
S *Eurydice*	12 0	91 0			S	1	..	Fine
S S *Ursa*	13 30	85 0			N W	2		Clear
S *Loudon Hill*	15 30	83 0			E	5		
S. S *Wildcraft*	15 40	85 20			S W	2		Clear
S *Joseph*	17 5	92 10			S by W	1		Squally
S S *Iranopolis*	18 20	84 20			Variable	1—2		Cloudy
S S *Lamada*	19 25	90 45	30·00	29 80	W by S	4	..	Fine, occasional rain in afternoon
S S *Plassey*	19 45	87 45	29 48	75	W N W	6	North swell	Sea and wind decreasing
S S *Shahzada*	20 5	89 7			S W	5		
S S *Waverley*	20 5	88 30	?		W S W	5	West swell	Squally
S *Kalakana*	20 9	89 38	29 78?		S S W			
S S *Congella*	20 20	88 10	29 78	29 58	W N W			
S S *Assina*	Diamond Harbour		29 66		N	5	..	Squally
S S. *Maharaja*	At Kulpee		9 80	..	E N E.	5 to 8	...	Strong squalls.
S S. *Canara.*	Anchored off Saugor Island							
Lincolnshire	Near E Channel		29 53?		W		..	Clear at 7 A M
F L V *Canopus*	—		29 70	29 64		5	South swell	Gloomy rain 4 P M
F L V *Star*			29 70			7		
S S *St Regulus*	Near Sand heads.				W S W	8		
S S. *Japan*	Near Sand-heads.		29·90	29 70	S. E. by S.	..		
S S *City of Vienna*	25 m les S. W of Intermediate F L V			...	N W	7	High sea	

The preceding data establish that light southerly winds (force 1 to 2) prevailed over the south and centre of the Bay at 8 A M of the 6th South west winds of indraught to the storm area were blowing in the north of the Bay The strongest winds reported were of force 7 to 8 in the north west angle of the Bay, where winds were almost certainly strongest. Hence at 8 A.M winds increased in force from 1 in the south of the Bay to 8 at the head of the Bay At 4 P M winds in the north-west of the Bay had decreased to force 4 to 5 (moderate to strong breeze)

The central disturbance was now at or near Silchar, but the depression was small in amount, probably not exceeding a tenth of an inch Winds were very light at all the stations, and averaged only 2 miles an hour during the previous 24 hours at Silchar, Sibsagar and Kendat, and three out of the six stations reported calms Dhubri and Dacca had experienced strong winds during the previous 24 hours, but at 8 A M the winds were nearly as light at these stations as at the remaining stations *At 2 A M and 3 A M of the previous day the* storm was giving hurricane winds on the north west angle of the Bay Hence in the 24 hours preceding 8 A M of the 7th during which the storm had passed across the sea face of the Sunderbunds into the plains of South and East Bengal, the vigorous cyclonic circulation had been completely broken up and the winds in the residual depression were even below the normal winds of the season in strength at 8 A M of the 7th This rapid disintegration of the storm appears to have been due to two causes —

Breaking up of the storm

1st —The decrease in the general strength of the southerly humid winds of indraught in the south and centre of the Bay, which had commenced at least 36 hours previously and was very marked on the morning of the 6th

2nd —The effect of the hills of Assam and East Bengal in breaking up a cyclonic circulation advancing towards the angle formed by them in the north east of Cachar

In the case of the present storm the first appears to have been the most influential cause

The breaking up of the storm accompanied a rapid clearing up of the skies during the night of the 6th The following gives cloud data for 8 A M of the 6th and 7th —

Meteorological area	Average cloud amount at 8 A M		
	6th	7th	8th
Orissa	7	2 0	
Bengal	9 5	4 4	1
Bihar	5 1	0	0
Chota Nagpur	10	0	0
Assam	1	5 5	7
Upper Burma	10	10	6

Skies had cleared except in Assam, East Bengal and Burma, where they were still more or less heavily clouded Rain had fallen in moderate amounts over Burma Assam, East and South Bengal The

following gives an analysis of the rainfall distribution during the 24 hours preceding 8 A.M. :—

METEOROLOGICAL AREA.	Average rainfall in District during previous 24 hours.	Heaviest in district.
	Inches.	
Orissa	0·06	0·29 inch
Chota Nagpur	*Nil*	...
South Bihar	*Nil*	...
North Bihar	*Nil*	...
Bengal South-west	0·21	2·30 inches
" East	1·23	4·40 "
" North	0·07	0·70 "

Weather in Bengal and Cachar at 4 P.M.

The following 4 P.M. observations at the stations for which 8 A.M. data have been given above show that the depression had completely filled up, and that in Cachar and the neighbouring districts of Assam and Upper Burma skies were clearing and light variable winds obtained :—

STATION.	4 P.M. PRESSURE.			WIND.		Cloud proportion.	Weather.
	Actual reduced to sea-level and constant gravity.	in past 24 hours.	Variation from normal.	Direction.	Velocity 8 A.M. to 4 P.M.		
	"		"		Miles.		
Chittagong	29·829	+·121	+·007	N. W.	1	6	
Sibsagar	·815	—·039	—·023	N. E.	2	10	Gloomy.
Silchar	·821	+·041	+·016	W. S. W.	1	4	
Dhubri	·809	—·001	—·018	E.	11	4	
Dacca	·824	+·135	+·010	S.	3	3	

These observations establish that the depression had almost completely filled up. Winds had fallen light and were beginning to back to north. Thus at Chittagong winds had shifted to north-west.

Weather in the Bay of Bengal on the 7th.

The following table gives 8 A M observations of the 7th taken on board vessels in the Bay —

Ship	Position: Latitude N ° ′	Position: Longitude E ° ′	Barometer: Actual ″	Barometer: Corrected	Wind: Direction	Wind: Force	Sea	Weather
S S *Diamond*	11 50	84 30			E	1	Smooth	Fine clear weather
S *Glenrichet*	12 0	90 12			W N W	1		Fine.
S *Eurydice*	12 35	90 45			S	1		Fine
S S *Shahjehan*	5 0	92 40	29·94		N N E	2		Clear
S S *Ursa*	17 10	86 30			N by W	2	Moderate swell	Fine
S *Loudon H ll*	17 30	92 15			S W	1		Clear
S S *Canara*	19 0	90 10	29·89		N E	1		Fine
S *Joseph*	8 50	91 35			W S W	2		
S S *Wildcroft*	19 15	86 20			N N E	2	Sea smooth.	Fine.
S S *Ironopolis*	19 45	86 20			N E	1		Light variable air from 8 A M
S S *Maharaja*	20 40	88 50			N E.	4	Light swell	Fine
S S *Kistna*	21 10	90 15			N E	4	Slight swell	Fine
S S *Kola*	Off Akyab				S W	3		Fine cloudy
S S *Congella*	Eastern Channel					1		
F L V *Canopus*				...	N W	3	Slight swell	
F L V *Star*					N	2	Smooth.	...
S S *St Regulus*	Off Saugor					1		Clear
S S *Waverley*	Off Saugor				N N W	4		Fine.

These observations indicate that fine clear weather with light to moderate winds had been re established over the Bay during the previous 24 hours The south-west winds which prevailed over the greater part of the Bay at 8 A M of the previous day had given way over the greater part of the Bay area, and were already replaced by the normal north east winds of the season Seven vessels out of nine between Lat 14°N and Lat 21°N reported northerly or north easterly winds This rapid change from south-westerly to north easterly winds in the north and centre of the Bay whilst the storm was breaking up appears to be an additional proof that the disintegration of the storm was due to the falling off in the strength of the humid winds of indraught in the south of the Bay

CHAPTER V.

STORM OF THE 19TH TO THE 24TH NOVEMBER IN THE BAY OF BENGAL.

It appears to be desirable, before commencing the history of this storm, to give a brief statement of the normal pressure conditions of the Indian area in November and the peculiar features of the distribution of pressure in November 1891.

The second chart in Plate XIX exhibits the normal pressure distribution and direction of the lower air movement in India in November. The chief features of the former are as follows :

Normal pressure distribution in India in November. (Plate XIX.)

Pressure is highest in the North Punjab, where the mean pressure of the month slightly exceeds 30·00″ and is lowest off the Malabar and Konkan Coasts in the Arabian Sea and the south of the Bay of Bengal between the South Coromandel and East Ceylon Coasts and the Andamans and Nicobars. The mean pressure in that area is slightly less than 29·85.″ The mean range of pressure in the Indian area is hence nearly two-tenths of an inch in November. The south of the Bay is covered by a broad belt of slightly deficient pressure relatively to the equatorial belt immediately to the south of it and to the Deccan and Northern India. This broad belt is the continuation of the trough of low pressure of the monsoon period and of the month of October. It usually retreats to the equatorial belt in December, and is then absorbed into the belt of uniform pressure in that area, which marks the northern limit of the south-east trade wind area proper in the Indian Ocean.

It should be noticed that in November, as in October, pressure is fairly uniform over large areas in the Indian area. Hence the pressure variations or the abnormal features of the pressure distribution have a much larger influence in these months in modifying the pressure relations than during the previous five months of the south-west monsoon proper.

Normal air motion in India in November.

The normal air movement in the month of November is similar to that of October over the greater part of India. Light north-westerly to westerly winds prevail in the Gangetic plain and easterly winds in the Assam Valley. This air movement is continued as a southerly current, giving northerly winds in Bengal and north-easterly winds in the Bay of Bengal. In Rajputana light northerly winds obtain and in Central India and in the Central Provinces north-easterly to easterly winds. North-easterly winds prevail in the Madras Coast districts and are continued as easterly winds in the Deccan and Mysore. The air movement in India feeds into and forms an integral part of the air movement in the adjacent seas.

The movement in the peninsula forms part of the general transfer of air to the south-west which occurs over the greater part of the Arabian Sea in November as also in the northern and western portions of the Bay of Bengal In the south of the Arabian Sea and the Bay of Bengal winds are more or less variable Humid south-west winds, however, prevail during the greater part of the month In the Bay these south-west winds are continued as south, south-east, east and north-east winds in the south and centre of the Bay, and hence the north-east winds in the Coromandel Coast are humid rain-giving winds. When light south-west or variable winds prevail in the south of the Bay at this time, light to moderate northerly to north-easterly winds obtain over the remainder of the Bay area.

Abnormal features of distribution of pressure and winds in November 1891 in India (Plate XIX and XX.)

The meteorology of November 1891 was characterized by several large and well marked abnormal features, which were the continuation of similar features of the preceding month The following gives a brief statement of the most noteworthy —

1st—Pressure was in slight excess in the Indian land area

2nd—Pressure was in relative defect in Northern India and Burma, and the east of the Bay, but the deficiency was generally small in amount

3rd—Pressure was in relative excess in the peninsula, the increase being greatest in the West Deccan, South Madras and Ceylon. The following stations define the area of the greatest excess of pressure —

Bellary	+ 023"
Sholapur	+ 031"
Poona	+ 024"
Malegaon	+ 024"
Khandwa	+ 029"
Akola	+ 021"

4th—The chief effects of these abnormal features were to give mean gradients during the month slightly less steep than usual, and to displace the mean position of the area of minimum pressure in the Bay Usually it is an elongated or oval belt lying between the Coromandel Coast and the Andamans, the lowest pressure in it being near the Coromandel Coast In November 1891, it lay between the South Coromandel and West Ceylon Coasts and the Andamans and Lower Burma It was on the average of the month much broader than usual, especially in its eastern half and occasionally (as immediately before the cyclone under discussion) the longest diameter of this area of hallow depression ran north and south instead of east and west, its normal direction.

The axis of the trough of minimum pressure in its eastern half hence ran through the Andaman Islands instead of the Nicobars, and was hence displaced at least 5° north. A further effect of this was that the whole of the south-east of the Bay was an area of nearly uniform pressure,—a condition usually favourable for the initiation of cyclonic storms, so long as a massive humid current is blowing into the area. The mean distribution of pressure and its variation from the normal in November 1891 are exhibited in Plates XIX and XX.

5th—The air movement was in strict conformity with these peculiar abnormal pressure conditions. Winds were on the whole even lighter than usual in the Gangetic plain. In the peninsula the easterly element of the air movement was much less strongly marked. This deflection of the winds from the normal mean of the month was exhibited very strongly at the Madras Coast stations and to a slightly less extent in the Deccan and Central Provinces. The following gives data for a few representative stations :—

	Station.	Mean wind direction, November 1891.	Normal mean wind direction, November.	Decreased easting of winds, November 1891.
Madras Coast Districts	Vizagapatam	N 34° E	N 75° E	41°
	Madras	N 19° E	N 61° E	42°
Deccan	Secunderabad	N 56° E	N 53° E	3° ?
	Bellary	N 75° E	N 80° E	5°
Central Provinces	Nagpur	N 27° E	N 60° E	33°
	Khandwa	N 32° E	N 63. E	31°

The same pressure conditions determined an unusual prevalence of southerly and easterly winds in the eastern half of the Bay. The following gives data in illustration :—

	Direction.		Increased easting.
	Mean actual, November 1891.	Normal, November.	
Port Blair	S. 29° E.	N. 63° E.	...
Diamond Island	N. 81° E.	N. 59° E.	+ 22°
Mergui	N. 71° E.	N. 28° E.	+ 43°
Akyab	N. 23° E.	N. 6° W.	+ 29°

Winds were very generally appoximately normal in

Unusually fine and dry weather prevailed during the month in North Western and Central India The mean temperature of the month was hence considerably in excess in North Western India, but in the peninsula and Bay area the temperature conditions differed little from the normal

Brief account of meteorology of India during the interval between the second and third storms

The Port Blair cyclone filled up on the afternoon and evening of the 7th Pressure increased over the whole of the Indian area during the next 48 hours, and on the morning of the 9th moderate gradients favouring northerly winds obtained in the Bay During the same time skies cleared completely in North-Eastern India, whilst they became overcast in Southern India, and frequent showers fell which gave moderate general rain for some days

On the morning of the 9th well marked anti-cyclonic conditions obtained in Northern and Central India Pressure was highest in Central Rajputana and lowest in the south-east of the Bay and ranged at 8 A M between 30 12" at Ajmere and 29 89" at Port Blair Pressure gave way over the Indian area during the next four days and on the morning of the 14th it ranged at 8 A M between 29 96" at Peshawar and Jubbulpore and 29 80" at Port Blair The Bay area was on the 13th and 14th covered by a very shallow depression the centre of which was near and to the west of the Andamans Skies were clear, or very lightly clouded, over the whole of India except South Madras, where they were partially clouded and rain had almost ceased to fall

A rapid recovery of pressure occurred during the next 48 hours in Northern and Central India, whilst pressure continued to decrease in the south east and centre of the Bay On the morning of the 16th pressure ranged from 30 12" at Ajmere to 29 77" at Port Blair (thus giving a total range of pressure of 35") The general character of the weather remained unchanged Fine clear weather with cloudless skies prevailed everywhere except in Lower Burma and South Madras, where skies were lightly clouded

Weather in the Bay of Bengal antecedent to the formation of the storm.

Moderate gradients obtained in the north of the Bay, and a broad belt of low pressure lay between the East Ceylon Coast and Tenasserim As the storm about to be described originated in this depression area, it is necessary to trace the changes of weather which occurred in it during this period The weather charts of the 9th, 14th and 17th, published in the India Daily weather reports of these dates show the distribution of pressure, and the changes in the position of the broad belt or trough of low pressure. On the 9th it covered the south east of the Bay, and its position and character were such that it chiefly determined humid winds, cloud and rain to Southern India. On the 14th the belt had widened out into a broad area of

slightly deficient pressure, which covered the whole of the Bay except the extreme south and with a tendency to the development of a small central depression to the west of the Andamans. The chart of the 17th shows that southerly winds were extending northwards in the eastern portion of this area of deficient pressure and that the central depression had developed to some extent.

The extension of southerly winds up the east of the Bay is very clearly shown by the following table giving data for Port Blair and Nancowry:—

Date.	Port Blair.			Nancowry.	
	Wind direction at 8 A.M.	Daily air movement in past 24 hours.	Amount of rainfall in previous 24 hours.	Wind direction at 8 A.M.	Amount of rainfall in previous 24 hours.
9th .	N.-W.	96	*Nil*	Calm	*Nil*
10th .	N.-N.-E.	98	*Nil*	Calm	0·17
11th .	N.-N. E.	174	0 2	Calm	0·03
12th .	S.-S.-E.	232	0 9	Calm	*Nil*
13th .	N.-E.	308	*Nil*	Calm	0·05
14th .	E.-S.-E.	256	0·11	S.-S.-W.	0·25
15th .	Variable	373	0·66	S.	1·87
16th .	Variable	39	0·17	S.	0·85
17th .	S.-S.-E.	480	0·40	S.	0·23

The preceding data show that north-east winds obtained at Port Blair and calms at Nancowry from the 9th until the 13th. Southerly winds set in at Nancowry on the 14th and blew steadily for some days afterwards. Winds were very variable, both in direction and force, on the 15th and 16th at Port Blair. Strong and steady south-south-east winds set in on the 17th and continued for some days afterwards.

The ship *Glenricht* passed through this area between the 11th and 14th on her voyage from Liverpool to Calcutta. The following gives a summary of the weather she experienced at this time:—

Date.	Position at noon.		Weather during day.
	Lat. N.	Long. E.	
	° ′	° ′	
11th .	14 24	91 7	8 A.M. A stiff squall with torrents of rain. Wind was north-east before squall, but hauled to south during the squall. During the remainder of the day light unsteady winds and showery weather.
12th .	15 29	91 3	Wind—south-east to east; light unsteady breezes with cloudy showery weather.
13th .	16 21	91 40	Morning—baffling airs with heavy rain. Afternoon—unsteady winds, weather dark and cloudy.
14th .	17 18	91 54	Morning—light unsteady airs. Afternoon—light north-east airs and fine clear weather.

The *Glenricht* crossed the Equator on the 28th of October, and had for some days afterwards light baffling airs and calms. She advanced only 50 miles during the 24 hours preceding noon of the 29th, and her average daily run during the next fortnight was barely 70 miles. Her run during the six days preceding the 29th averaged 150 miles per diem. The vessel had very unsteady, variable winds and light airs and calms during the whole of the period from the 29th to the 14th. She experienced between Lat 13° N. and 16° N. very heavy rain with occasional squalls She passed into the area of steady north-east winds on the 14th, and had fine clear weather during the remainder of her voyage.

The ship *Mobile Bay*, which was dismasted by the cyclone on the 21st, crossed the Equator on the 13th and advanced into this area of heavy rain and squally weather to the west of the Andamans on the 18th. The following table gives a summary of the weather she experienced between the 13th and 17th:—

Date.	Position at noon				Weather
	Lat. N		Long E.		
	°	′	°	′	
13th .	1	38	91	16	Morning—wind light from south south-west, sky overcast, 8 P M —wind west-south-west and unsteady, weather very unsettled with squalls and heavy rain.
14th .	2	34	91	20	Morning—light south-west breeze and cloudy, weather squally in evening, lightning to north-west.
15th .	3	26	91	40	Wind—unsteady from south-west with heavy squalls and rain greater part of day
16th .	No observation.				Light—unsteady south-west winds with rain squalls throughout whole day. Sea setting up from north-west.
17th .	6	8	90	57	Morning—wind south-west, north-west sea, afternoon—squalls with rain, wind hauled to west. Evening—swell from north-west; lightning to east.

The chief features of the weather experienced by the ship *Mobile Bay* in the south-east of the Bay were the continued lightness and unsteadiness of the winds and the frequent occurrence of squalls.

The S. S. *Purneah* crossed the south of the Bay between the 12th and 17th on her voyage from Penang to Negapatam. Her log is even more interesting than those of the *Glenricht* and *Mobile Bay*, as the information it contains not merely establishes that unsettled weather prevailed in the area or trough of low pressure running across the

slightly deficient pressure, which covered the whole of the Bay except the extreme south and with a tendency to the development of a small central depression to the west of the Andamans. The chart of the 17th shows that southerly winds were extending northwards in the eastern portion of this area of deficient pressure and that the central depression had developed to some extent.

The extension of southerly winds up the east of the Bay is very clearly shown by the following table giving data for Port Blair and Nancowry:—

Date.	Port Blair.			Nancowry.	
	Wind direction at 8 A.M.	Daily air movement in past 24 hours.	Amount of rainfall in previous 24 hours.	Wind direction at 8 A.M.	Amount of rainfall in previous 24 hours.
9th .	N.-W.	96	*Nil*	Calm	*Nil*
10th .	N.-N.-E.	98	*Nil*	Calm	0·17
11th .	N.-N. E.	174	0 2	Calm	0·03
12th .	S.-S.-E.	232	0 9	Calm	*Nil*
13th .	N.-E.	308	*Nil*	Calm	0·05
14th .	E.-S.-E.	256	0·11	S.-S.-W.	0·25
15th .	Variable	373	0·66	S.	1·87
16th .	Variable	39	0·17	S.	0·85
17th .	S.-S.-E.	480	0·40	S.	0·23

The preceding data show that north-east winds obtained at Port Blair and calms at Nancowry from the 9th until the 13th. Southerly winds set in at Nancowry on the 14th and blew steadily for some days afterwards. Winds were very variable, both in direction and force, on the 15th and 16th at Port Blair. Strong and steady south-south-east winds set in on the 17th and continued for some days afterwards.

The ship *Glenricht* passed through this area between the 11th and 14th on her voyage from Liverpool to Calcutta. The following gives a summary of the weather she experienced at this time:—

Date.	Position at noon.		Weather during day.
	Lat. N.	Long. E.	
	° ′	° ′	
11th .	14 24	91 7	8 A.M. A stiff squall with torrents of rain. Wind was north-east before squall, but hauled to south during the squall. During the remainder of the day light unsteady winds and showery weather.
12th .	15 29	91 3	Wind—south-east to east; light unsteady breezes with cloudy showery weather.
13th .	16 21	91 40	Morning—baffling airs with heavy rain. Afternoon—unsteady winds, weather dark and cloudy.
14th .	17 18	91 54	Morning—light unsteady airs. Afternoon—light north-east airs and fine clear weather.

The *Glenricht* crossed the Equator on the 28th of October, and had for some days afterwards light baffling airs and calms She advanced only 50 miles during the 24 hours preceding noon of the 29th, and her average daily run during the next fortnight was barely 70 miles Her run during the six days preceding the 29th averaged 150 miles per diem The vessel had very unsteady, variable winds and light airs and calms during the whole of the period from the 29th to the 14th She experienced between Lat 13° N and 16° N very heavy rain with occasional squalls She passed into the area of steady north east winds on the 14th, and had fine clear weather during the remainder of her voyage

The ship *Mobile Bay*, which was dismasted by the cyclone on the 21st, crossed the Equator on the 13th and advanced into this area of heavy rain and squally weather to the west of the Andamans on the 18th The following table gives a summary of the weather she experienced between the 13th and 17th —

Date	Position at noon		Weather
	Lat N	Long E.	
	° ′	° ′	
13th .	1 38	91 16	Morning—wind light from south south west sky overcast 8 P M —wind west south west and unsteady weather very unsettled with squalls and heavy rain.
14th	2 34	91 20	Morning—light south west breeze and cloudy, weather squally in evening, lightning to north west.
15th .	3 26	91 40	Wind—unsteady from south west with heavy squalls and rain greater part of day
16th .	No observation		Light—unsteady south west winds with rain squalls throughout whole day Sea setting up from north west.
17th	6 8	90 57	Morning—wind south west north-west sea afternoon—squalls with rain wind hauled to west. Evening—swell from north-west lightning to east

The chief features of the weather experienced by the ship *Mobile Bay* in the south-east of the Bay were the continued lightness and unsteadiness of the winds and the frequent occurrence of squalls

The S S *Purneah* crossed the south of the Bay between the 12th and 17th on her voyage from Penang to Negapatam Her log is even more interesting than those of the *Glenricht* and *Mobile Bay*, as the information it contains not merely establishes that unsettled weather prevailed in the area or trough of low pressure running across the

Bay, but that weather was most unsettled in the eastern half. The following gives the whole of the information contained in her log:—

Date.	Position at noon.		Barometer, actual, 4 P.M.	Wind.		Weather.
	Lat. N.	Long. E.		Direction.	Force.	
	° ′	° ′	Inches.			
12th .	6 0	96 40	29·82	Variable	0 to 1	Wind all round the compass. Torrents of rain; sea smooth. Midnight—squalls increasing and sea rising.
13th .	6 25	92 45	·80	W.-S.-W.	2 to 5	8 A.M.—fresh gale; heavy banks of cloud all round. 8 P.M.—clear.
14th .	7 03	90 15	·77	W. hauling to W. by N.	6 to 8	Daylight—increasing gale with hard squalls and blinding rain; high sea. Thinking the ship was running into a storm to northward, steered west and eased down. 8 P.M.—squalls less and sea decreasing.
15th .	7 17	86 30	·82	W.-N.-W.	4 to 5	Morning—sea smoother; wind decreasing. Heavy clouds stacked up from N.-E. to N.-W. Afternoon—moderate breeze; swell from N.-E.
16th .	9 43	82 34	·84	N.-N.-W.	4	Weather getting finer; wind going into N. and N.-N.-E. and long N.-E. swell.
17th .	Arrived at Negapatam.		...	...	...	N.-E. swell. Sunset very suspicious looking.

The log of this vessel shows that the weather became more and more squally as she advanced westwards across the south of the Bay until she reached Long. 90° or 89° E., where she had a strong gale with hard squalls and blinding rain. The weather thence gradually improved and from Long. 86° to Negapatam she had moderate north-west winds with a swell from the north-east due to the disturbance in the centre of the Bay.

The various observations, hence, establish fully that during the period from the 12th to the 17th the trough of low pressure ran across the south of the Bay, and that it became gradually deeper in the eastern half to the south-west of the Andamans. Weather was very squally in this area (more especially between Long. 85° and 92°) with heavy to torrential rain.

There was a tendency to the formation of a local depression and the establishment of a cyclonic circulation in this area, but it was very feebly developed on the 17th. The storm was in the initial stage, and the unsteadiness of the winds and general character of

the weather show clearly that there was as yet no definite cyclonic circulation nor central area of indraught.

The barometric changes of the next 48 hours were small in amount. The only feature of importance was the appearance of a very shallow depression in Upper Sind on the 17th. It advanced eastwards to the foot of the Himalayas during the next 48 hours and disappeared after giving a few light showers in the North Punjab and hill districts. Very light winds obtained over the whole of Northern India. In Southern India skies were very lightly clouded and rain had ceased to fall. Winds ranged in direction between north and north-west on the Coromandel Coast. The weather was, in fact, such as usually occurs during a break in the rains in Southern India due to the retreating south-west monsoon. Storms are frequently generated during such periods in the Bay of Bengal.

The preceding account has shown the gradual development of a small area of squally weather, torrential rain and of slight depression in the broad belt of nearly uniform pressure in the south and centre of the Bay during this period. We have now to trace the rapid development of this into an intense cyclone.

18th November.

Weather conditions in India.

18th November.—The pressure changes of the previous 24 hours were small and unimportant in the land area. Pressure increased in North-Eastern India and Burma and decreased in Western and North-Western India. The pressure and temperature conditions differed very little from the normal. The following gives mean variation data for the larger provinces:—

Province.	Mean variation of pressure from normal.	Variation of mean temperature from normal.	Mean hourly wind velocity in miles.	Mean cloud amount.	Average rainfall in past 24 hours.
	"	°			Inch.
Burma	+·008	+0·8	4	2·3	Nil.
Bengal and Assam . .	−·002	+0·8	2	0·7	Nil.
Punjab	−·054	+6·3	3	4·6	0·01
North-Western Provinces .	−·024	+2·5	1	0	Nil.
Central Provinces . .	−·008	−0·6	2	0	Nil.
Sind and Rajputana . .	−·041	+5·0	4	0	Nil
Guzerat and Central India	−·013	+2·2	3	0	Nil.
Bombay	+·002	−0·5	6	1·0	Nil.
Madras	−·004	+0·1	4	3·9	Nil.

The only suspicious features at this time were the absence of rain and the prevalence of abnormal north-westerly winds at the Coromandel Coast stations. The latter pointed to the existence of

a depression in the centre or south-east of the Bay. The foll[owing] data for six land observatories fix its position to some extent:—

Station.	Pressure. Actual reduced to sea-level and constant gravity.	Pressure. Change in past 24 hours.	Pressure. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity during past 24 hours.	Cloud proportion.	Rainfall in [...]
	"	"	"				
Camorta	29·935	−·007	...	Calm.	?	10	0·41
Port Blair	29·848	+·051	−·060	S.-S.-E.	13	9	0·58
Diamond Island	29·884	+·017	−·011	S.-E.	?	10	1·09
Madras	29·887	−·027	−·014	N.-N.-W.	7	4	*Nil.*
Negapatam	29·864	−·037	−·018	W.-N.-W.	6	7	*Nil*
Trincomalee	29·860	−·014	...	N.-W.	10	4	0·05

These observations indicate that a shallow depression, in which pressure was about a tenth of an inch below the normal, lay between Lat. 9° and 12° N. and between Long. 86° and 92° E.

Weather in the Bay of Bengal.

The following observations taken on board ships advancing northwards up the Bay give more definite information of its position and of the character of the weather in it:—

Name of vessel.	Position. Lat. N.	Position. Long. E.	Barometer. Actual.	Barometer. Corrected and reduced to sea level and constant gravity.	Wind. Direction.	Wind. Force.	Weather.
	° ′	° ′	Inches.	Inches.			
S. *Loch Broom*	6 9	92 30	...	...	S. to S.-W.	...	Wind unsteady from south to south-west; weather very squally with torrents of rain, but fine between the showers; sea smooth.
S. *Mobile Bay*	7 2	89 34	...	...	S.-W.	...	Morning—unsteady south-west wind; north-west swell; heavy rain. Afternoon—fresh south-west wind with squalls and rain.
S. *Forteviot*	7 22	90 57	...	...	S.-S.-W. to S.-W.	...	South-south-west to south-west winds during day; continued squalls with rain during the whole day. Winds variable in early morning; but increased in force to a fresh breeze in afternoon. Hard squalls during night.
S. S. *Pundua*	7 23	91 15	29·899	29·80	S.	5	Cloudy with rain.
S. *Lyndhurst*	9 55	89 33	...	...	S.	...	South winds with passing showers.
S. S. *Scindia*	12 43	80 30	...	...	N.	5	Cloudy.
S. S. *Maharaja*	15 37	94 13	...	...	S.-E.	2	Heavy passing clouds and rainy appearance.

The barometric and wind observations given in the above are very interesting, as they show conclusively that the available information furnish no indication of the existence, at this stage, of a regular cyclonic circulation. The whole of the observations establish that there was a shallow depression in a portion of the Bay. Winds were very light and unsteady in this area in which the storm was forming, and immediately to the south a humid south-west current was blowing towards it. The south westerly winds were, at this stage, of moderate force but the air was heavily charged with moisture. Squalls were hence, of frequent occurrence, and heavy or torrential rain was falling over a portion of the area. Concentrated rainfall over a small and central portion of the depression was the only prominent meteorological feature at this time.

The marine data also establish that southerly winds had advanced up the east of the Bay as far north as Lat. 15° or 16° N., whilst north east to north west winds blew steadily in the western half of the Bay as far south as Lat. 7°N. These two currents from opposite directions in different parts of the Bay were practically the normal air movement of the season and not necessarily cyclonic winds in the proper sense of the word. Under favourable conditions they might become winds of indraught to a central depression and cyclonic vortex. This transformation in the case of the present storm occurred during the next 24 hours.

19th November. 19th November. Plate XXI.

19th November.—The chart of this day given at the end of this volume (Plate XXI) exhibits the distribution of pressure and lower air movement in the Bay area and adjacent coast districts.

Weather in the Indian land area.

Pressure had given way during the previous 24 hours over the whole of India except in North-Western India where the disappearance of the depression had been followed by the re-establishment of the normal anti-cyclonic conditions of the period. The following gives the chief features of the pressure and temperature conditions:—

Province	Mean variation of 8 A.M. pressure from normal.	Pressure anomaly	Average variation of mean temperature from normal.	Mean cloud amount.
	1"	°	°	
Burma	−0	+·002	+1·7	1·6
Bengal and Assam	−·014	−·026	+0·9	2·3
North Western Provinces	−·040	−·022	+3·3	0
Punjab	+·021	+·042	+2·2	0
Bombay	−·001	+·017	−0·6	2·8
Berar and Central Provinces	−·070	−·0[illegible]8	+0·1	0·5
Guzerat and Central India	−·031	−·001	+1·9	0
Sind and Rajputana	−·010	+·035	+3·0	0·6
Madras	−·127	−·09	−0·6	3·7

The preceding data indicate that the chief abnormal features of the pressure distribution were similar in general character to those which had obtained from the beginning of October. Pressure was in excess over the whole Indian area, but was, relatively to the general condition, in defect in Northern India, Burma and the east of the Bay, and was in excess in the Peninsula and Western India. Skies were clear over the greater part of the whole area and were lightly clouded in Madras and North-Eastern India, where weather was fine and rain had ceased.

8 A.M. observations at coast stations of the Bay.

The following gives 8 A.M. observations taken at coast stations of the Bay:—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall in past 24 hours.	Weather.
	Rd uced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.			
	"	"	"		Inches.			
Port Blair	29·851	+·003	...	S. S. E.	9	3	0·56	...
Diamond Island	29·880	+·004	—·017	S. E.	13	4	1·49	Sea rough.
Akyab	29·898	+·031	—·030	N.	3	1	*Nil*	...
Vizagapatam	29·871	+·055	—·069	N.	4	4	*Nil*	...
Madras	29·870	+ 057	?	N.	10	1	*Nil*	Sea slight.
Coconada	29·859	+·028	—·042	N. N. W.	9	4	*Nil*	...
Negapatam	29·843	+·021	—·039	W. N. W.	3	8	*Nil*	Sea tremendous.
Trincomalee	29.849	—·011	?	N. W.	11	9	*Nil*	...

These observations (*vide* chart of day, Plate XXI) establish that the greater part of the centre and south of the Bay was included within the isobar 29·85″ and that it was an area of shallow depression with respect to all neighbouring areas. The depression was greatest to the west of the Andamans, probably in about Long. 88° E.

Observations taken on board ships in the Bay.

The following table gives 8 A.M. observations of the day taken on board vessels in the Bay:—

SHIP.	POSITION AT 8 A.M.		BAROMETER AT 8 A.M.		WIND AT 8 A.M.		Sea.	Weather remarks.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches	Inches				
S. *Victoria Regina*	0	88 34	...	...	S. E.	4	......	Clear.
S *Eleiser*	0 53	91 55	...	...	S. E.	...	......	
S. *Jupiter*	2 31	92 31	...	...	S. E.	...	......	
S. S. *Nizam*	Tuti	corin.	30·20	29·88	S. W.	1	......	Fine and clear.

Ship	Position at 8 A M — Latitude N	Position at 8 A M — Longitude E	Barometer at 8 A M — Actual	Barometer at 8 A M — Corrected and reduced to sea level and constant gravity	Wind at 8 A M — Direction	Wind at 8 A M — Force	Sea	Weather remarks.
	° ′	° ′	Inches	Inches				
S S. *Baron Elibank*	6 10	82 0	30 25	29 88	N E	2	Smooth.	Fine
S S *Landaura*	7 36	77 23	29 99	29 87	S F	1	..	Fine and clear
S *Loch Broom*	8 36	92 30	29·84	29 84	S S W		Smooth	Fine and clear
S *Mobile Bay*	9 1	88 10			S S W	5		Cloudy
S *Fortescot*	10 25	89 53	29 62	29 83	S S W	5	..	Squally
S S *Katoria*	10 27	97 16	29 94	29·91	S S W	4	Moderate sea	Dull weather
S S *Ecindia*	14 13	81 13	29 87	29 85	N by E.	6	Strong head sea	Fine weather with passing clouds.
S S *Kerbela*	15 0	81 0	30 00	29 87	N N E	5	Heavy E N E swell	Fine with passing clouds
S *Clive*	15 40	94 0	29 93	29 86	S E	4		Clear
S S *Chanda*	16 48	92 42	30 11	29 86	S	5		Cloudy
S S. *Fultala*	18 16	86 34	30 05	29 88	N N E	5	.. ..	Fine and cloudy
S S *Sirsa*	at Rangoon		29 96	29 91	Variable			
S S *Japan*	18 43	90 1	30 09	29 87	Variable	..		Overcast, squally with rain

The weather was fine over by far the greater part of the Bay In the south of the Bay light to moderate south easterly to south westerly winds prevailed (except near the Madras Coast where winds were from north west) Southerly winds had continued to advance up the eastern half of the Bay and were experienced in Lat 15°40′ N and Long 94°0′ E. by the S S *Clive* and off the Arakan Coast in Lat 16°48′ N by the S S *Chanda*

Moderate north east winds obtained at the head of the Bay and off the Orissa and North Madras Coasts

Weather was on the other hand squally in the centre of the Bay to the west of the Andamans The ship *Fortescot* was in this area during the day and the ships *Loch Broom* and *Mobile Bay* were approaching it from the south The following gives the whole of the weather information contained in their logs —

Weather in the area of depression in the centre of Bay.

Name of vessel.	Hour	Position — Latitude N	Position — Longitude E.	Barometer — Actual	Barometer — Corrected and reduced to sea level and constant gravity	Wind — Direction	Wind — Force	State of Sea.	Weather
				Inches	Inches				
S *Loch Broom*	4 A M	..	..	..	..	S S W	...	Smooth.	Fine and clear
	8 "			..	...	S S W	...	Ditto	Ditto
	noon	9°8	92°30	29·84	29·84	S S W	...	Ditto	Ditto
	4 P M. to Midnight	...			...	S. S. W	3	Ditto	Heavy rain with squalls at short intervals.

The preceding data indicate that the chief abnormal features of the pressure distribution were similar in general character to those which had obtained from the beginning of October. Pressure was in excess over the whole Indian area, but was, relatively to the general condition, in defect in Northern India, Burma and the east of the Bay, and was in excess in the Peninsula and Western India. Skies were clear over the greater part of the whole area and were lightly clouded in Madras and North-Eastern India, where weather was fine and rain had ceased.

8 A.M. observations at coast stations of the Bay.

The following gives 8 A.M. observations taken at coast stations of the Bay :—

STATION.	PRESSURE.			WIND.		Cloud.	Rainfall in past 24 hours.	Weather.
	Rd uced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.			
	"	"	"		Inches.			
Port Blair .	29·851	+·003	...	S. S. E.	9	3	0·56	...
Diamond Island	29·880	+·004	—·017	S. E.	13	4	1·49	Sea rough.
Akyab .	29·898	+·031	—·030	N.	3	1	*Nil*	...
Vizagapatam .	29·871	+·055	—·069	N.	4	4	*Nil*	...
Madras .	29·870	+ 057	?	N.	10	1	*Nil*	Sea slight.
Coconada .	29·859	+·028	—·042	N. N. W.	9	4	*Nil*	...
Negapatam .	29·843	+·021	—·039	W. N. W.	3	8	*Nil*	Sea tremendous.
Trincomalee .	29.849	—·011	?	N. W.	11	9	*Nil*	...

These observations (*vide* chart of day, Plate XXI) establish that the greater part of the centre and south of the Bay was included within the isobar 29·85″ and that it was an area of shallow depression with respect to all neighbouring areas. The depression was greatest to the west of the Andamans, probably in about Long. 88° E.

Observations taken on board ships in the Bay.

The following table gives 8 A.M. observations of the day taken on board vessels in the Bay :—

SHIP.	POSITION AT 8 A.M.		BAROMETER AT 8 A.M.		WIND AT 8 A.M.		Sea.	Weather remarks.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches	Inches				
S. *Victoria Regina* .	0	88 34	...	...	S. E.	4	......	Clear.
S *Eleiser* .	0 53	91 55	...	...	S. E.	...	......	
S. *Jupiter* .	2 31	92 31	...	...	S. E.	...	......	
S. S. *Nizam* .	Tuticorin.		30·20	29·88	S. W.	1	......	Fine and clear.

Ship	Position at 8 A M		Barometer at 8 A M		Wind at 8 A M		Sea	Weather remarks
	Latitude N	Longitude E	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force		
	° ′	° ′	Inches	Inches				
S S *Baron Elbank*	6 10	82 0	30 25	29 88	N E	2	Smooth.	Fine
S S *Landaura*	7 36	77 23	29 99	29 87	S E	1		Fine and clear
S *Loch Broom*	8 36	92 30	29·84	29 84	S S W		Smooth	Fine and clear
S *Mobile Bay*	9 1	88 10			S S W	5		Cloudy
S *Forteviot*	10 25	89 53	29 62	29 83	S S W	5		Squally
S S *Kaloria*	10 27	97 16	29 94	29 91	S S W	4	Moderate sea	Dull weather
S S *Scindia*	14 13	81 13	29 87	29 85	N by E.	6	Strong head sea	Fine weather with passing clouds
S S *Kerbela*	15 0	81 0	30 00	29 87	N N E	5	Heavy F N E swell	Fine with passing clouds
S *Clive*	15 40	94 0	29 93	29 86	S E	4		Clear
S S *Chanda*	16 48	92 42	30 11	29 86	S	5		Cloudy
S S. *Fultala*	18 16	86 34	30 05	29 88	N N E	5	... ...	Fine and cloudy
S S *Sirsa*	at Rangoon		29 96	29 91	Variable			
S S *Japan*	18 43	90 1	30 09	29 87	Variable			Overcast squally with rain

The weather was fine over by far the greater part of the Bay In the south of the Bay light to moderate south easterly to south westerly winds prevailed (except near the Madras Coast where winds were from north west) Southerly winds had continued to advance up the eastern half of the Bay and were experienced in Lat 15°40′ N and Long 94°0′ E. by the S S *Clive* and off the Arakan Coast in Lat 16°48′ N by the S S *Chanda*

Moderate north east winds obtained at the head of the Bay and off the Orissa and North Madras Coasts

Weather was on the other hand squally in the centre of the Bay to the west of the Andamans The ship *Forteviot* was in this area during the day and the ships *Loch Broom* and *Mobile Bay* were approaching it from the south The following gives the whole of the weather information contained in their logs — Weather in the area of depression in the centre of Bay.

Name of vessel.	Hour	Position		Barometer		Wind		State of Sea.	Weather
		Latitude N	Longitude E.	Actual.	Corrected and reduced to sea level and constant gravity	Direction	Force		
				Inches	Inches				
S *Loch Broom*	4 A M	...				S S. W	...	Smooth.	Fine and clear
	8					S S W	...	Ditto.	Ditto
	noon	9°8′	92°30′	29·81	29·84	S S. W	...	Ditto.	Ditto
	4 P M. to Midnight	...				S S. W	5	Ditto.	Heavy rain with squalls at short intervals.

Name of vessel.	Hour.	Position. Latitude N.	Position. Longitude E.	Barometer. Actual.	Barometer. Corrected and reduced to sea-level and constant gravity.	Wind. Direction.	Force.	State of Sea.	Weather.
				Inches	Inches				
S. *Forteviot*.	4 A.M.	...	...	...	...	S. W.	5	Heavy W. N. W.	Hard squalls with rain.
	8 ,,	...	...	...	...	S. S. W.	5	...	Squalls less frequent.
	noon.	10°48′	90°16′	29·62	29·83	S. W.	4	...	Clear.
	4 P.M.	...	...	...	...	S. S. W.	4	Heavy W. N. W.	Hot, sultry weather with occasional squalls and rain.
	8 ,,	...	...	...	...	S. by E.	4	...	Similar weather.
	Midnight.	...	...	...	...	S. by E.	4	...	Ditto.
S. S. *Mobile Bay*	n	9°1′	88°10′	...	...	S. S. W.	5	...	Cloudy.
	8 P.M.	...	...	...	...	...	...	...	Breeze increasing and becoming squally. Shortened sail.
	Midnight.	...	...	...	...	S.	...	High N. W.	Overcast with unsteady wind.

The *Loch Broom* had fine clear weather with light south-south west breezes during the morning, but as she advanced northwards she passed in about Lat. 10° N. and Long. 92½° E. into squally weather with heavy rain. The ship *Mobile Bay*, in the same latitude and about 300 miles to the west (in Long. 88° E.), had cloudy weather and fresh south-south-west winds in the morning. She also passed into an area of squally weather in the evening, and the character of the weather to the north was clearly indicated by the high north-west swell which she experienced during the night. The ship *Forteviot* further north in Lat. 10°48′ N. and Long. 90°16′ E. at noon had unsteady winds with changeable weather during the greater part of the day She experienced hard squalls in the early morning. At noon weather was fine and clear, but at 4 P.M. and during the night she had hot sultry weather with occasional squalls. As she advanced during the day the winds shifted from south-west to south-by-east. This veering of the wind, when taken in connection with the changeable squally weather, was significant, showing that it was probably due to a cyclonic storm in one or other of its stages and not to the ordinary recurvature of the monsoon current in November.

20th November. Plate XXII.

Weather in the Indian land area.

20th November.—The barometric changes of the preceding 24 hours were somewhat irregular, but small in amount in the Indian land area, and hence did not materially alter the distribution of pressure. The land observations also indicate that a shallow depression covered the centre and south of the Bay between the Coromandel Coast and the Andamans and Arakan Coast. Skies were clouding in Lower

Burma and had cleared in Southern India. The following variation data show that the conditions in the land area were practically identical with those obtaining on the 20th :—

Province.	Mean variation of 8 A M *pressure* from normal.	Mean pressure anomaly	Average variation of mean temperature from normal.	Average cloud amount.
	"	"	°	
Burma . . .	—·057	—·021	+2·4	4·1
Bengal and Assam .	—·057	—·021	+0·9	1·2
North-Western Provinces	—·061	—·025	+2·1	·0
Panjab . . .	—·066	—·030	+1·1	·0
Bombay . . .	+·006	+·042	—1·3	0·2
Central Provinces . .	—·027	+·001	+0·2	0
Guzerat and Central India	—·022	+·014	+1·1	·0
Sind and Rajputana .	—·021	+·015	+1·5	0·1
Madras . . .	—·026	+·010	—0·5	1·1

The data indicate that, whilst pressure was locally in excess in the Peninsula, it was in defect over the east of the Bay and in Burma and Northern India. The following table from 8 A M observation at seven coast stations :— 8 A M observations at coast stations of the Bay.

Station.	Pressure			Wind		Cloud proportion	Rainfall in past 24 hours.	Weather and sea.
	Actual red^ced to sea level and constant gravity	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.			
	"	"	"		Miles		Inch.	
Camorta . . .	29·958	—·012	?	Calm	7	10	0·48	Dark, gloomy.
Port Blair . . .	·843	—·003	?	S.S.E.	8	6	0·81	Monsoonish weather
Diamond Island . .	·845	—·035	—·057	E.N.E.	7	7	0·31	Sea smooth.
Akyab . . .	·831	—·027	—·072	N.E.	3	10	Nil.	...
False Point . . .	·836	—·013	—·070	N.N.W.	9	4	Nil	Sea light
Vizagapatam . .	·871	0	—·070	N.N.E.	3	3	Nil	Sea smooth.
Madras . . .	·813	+·003	—·049	N.N.W.	8	1	Nil	—

The preceding data show the character of the weather in the coast districts Pressure was in moderate defect, the deficiency being greatest at the eastern and northern stations. Light showers were falling in the east coast districts of the Bay. Skies were very lightly clouded on the west coast, rain had ceased to fall and winds were blowing from N. N. W. at Madras, the normal direction being N. E. to

Weather in the Bay of Bengal.

The following table gives 8 A.M. data of the Bay of Bengal for the 20th, extracted from the logs of vessels in the Bay on that date :—

Ship.	Position. Latitude N.	Longitude E.	Barometer. Actual.	Corrected and reduced to sea-level and constant gravity.	Wind. Direction.	Force.	Sea.	Weather.
	° ′	° ′	Inches	Inches				
S. *Victoria Regina* .	0 58	88 42	...	...	E.	4	...	Cloudy.
S. *Eleiser* .	2 49	92 42	..	...	S.-E.	...	...	
S. *Jupiter* .	3 42	91 55	...	...	S,-E.	...	...	
S.S. *Landaura*	5 49 (Noon.)	80 31	30·00	29·88	S.-W.	...	...	Cloudy, with occasional showers
S. S. *Katoria*.	5 52 (Noon.)	99 37	29·94	29·91	E.	2	Smooth.	Fine.
S. S. *Nizam*.	Colombo		30·20	29·88	S.-W.	3	...	Fine and cloudy.
S. S. *Khandala* . .	7 48	79 20	30·30	29 88	S.-W.	2	...	Fine.
S. *Baron Elibank* .	8 0	84 15	...	...	N.-W.	8	Cross sea from N. to N.-E.	Squally, overcast.
S. S. *Camorta*	8 49 (Noon.)	82 4	29·67	29·84	W.	4	...	Fine and clear.
S. *Loch Broom*	11 49	91 42	...	...	S.-S.-W.	...	S.-W. swell.	Cloudy and squally weather.
S. *Mobile Bay*	12 3	88 0	...	...	S.-S.-E.	...	...	8 A.M., wind blowing a hurricane.
S. *Forteviot* .	13 25	89 45	...	...	S.-E.	5	...	Hot, sultry weather.
S. S. *Scindia*.	50 miles S. of Coconada.		29·88	29·87	N.-N.-E.	6	Head swell.	
S. S. *Patialla*	Rangoon		...	...	...	2	...	Fine cloudy.
S. S. *Kola* .	Rangoon		30·04	29·86	...	...	...	
S. *Clive* .	Rangoon		29·93	29·86	Calm.	...	...	Clear.
S. *Lyndhurst*.	15 33	91 44	...	...	S.-S.-E.	6	...	Showery.
S. S. *Japan* .	15 44	92 31	30·08	29·85	S.	...	...	Cloudy, occasional squalls with rain.
S. S. *Shahjahan* . .	19 22	89 22	30·07	29·85	N.-E. by E.	4	S.-W. swell.	Cloudy.
S. S. *Kasara* .	21 35	...	29·99	29·87	N.-N.-E.	3	...	Fine, cloudy.
S. S. *Maharani* . .	Off Saugor.		29·86	29·88	N.-N.-E	2	...	Fine.
S.S. *Bhandara*	15 miles Calcutta		30·06	29·90	...	...	...	Fine.
S. S. *Kerbela* .	Coconada		30·03	29·89	N.	4	Heavy E. swell.	Fine.
S. S. *Fultala*.	Hooghly		30·07	29·90	N.	4	...	Fine and clear.
S. S. *Chanda*.	Near Rangoon.		30·09	29·85	N.-E.	2	...	Sky clear.

These observations show that to the north of Lat. 17° or 18° N. fine clear weather prevailed. To the south of Lat. 8° N. weather was cloudy with moderate south-east to south-west winds. Between these areas was a belt in which pressure was lower than either to the north or south, and in a portion of which squally stormy weather prevailed. The data of the 19th have shown that a cyclonic storm was developing rapidly on that day in about Lat. 11½° N. and Long. 87° to 88° E. Three vessels were in the immediate neighbourhood of that central area of disturbed weather on the 20th, *viz.*, the *Mobile Bay*,

Loch Broom and *Forteviot* The *Mobile Bay* passed early in the day into the central area, and encountered hurricane winds throughout the remainder of the day. The following gives the whole of the information relating to the weather she experienced on the 20th — | Observations on board the ship *Mobile Bay*

Hour	Position.		Barometer uncorrected	Wind		State of Sea	Weather
	Latitude N	Longitude E		Direction			
			Inches.				
2 A M				S		High sea from north-west	Sky overcast and unsteady wind
5 A M				S			Wind increasing, squally with heavy rain
7 A M.				S S E			
9 A M							Heavy squall struck the ship Rain less heavy
Noon	12° 3'	88° 0'					
2 P M			29 20	S E.			
7 P M				S E			Main top sail blew away Ship lying with her lee rail under water, almost on her beam ends
8 P M				E			Blowing hurricane The main sail blew away from the yard
11 P M				N E.			Blowing with hurricane force

It should be noted that this information was obtained by the Port Officer, Rangoon, by personal enquiry. He also writes that the log was carelessly kept and that the barometer read about 25" below the Calcutta standard. The ship's position at noon of the 20th given in the log is Lat 12° 3' N., Long 88° E It is not stated whether this position was determined by observation or by account, but probably the latter The extracts show clearly that the vessel passed rapidly during the day from the outer into the inner area of the intense cyclonic storm, and was carried round from the eastern to the northern quadrant between 2 P.M. and midnight. She had unsteady winds in the morning, when she was not more than 80 miles to the south east of the centre, a strong proof that the storm area was of small extent.

The position of the storm centre at noon of the day was hence probably between Lat. 11¾° N. and 12° N. Long and between 87½° E and 87¾° E. If the positions assigned to the centre at noon of the 20th and at noon of the previous day be approximately correct, the storm centre had commenced to move slowly in a N.-N.-E. direction during the previous 24 hours. Also, judging from the brief interval (apparently less than eight hours, so far as can be judged from the extracts) during which the winds experienced by the *Mobile Bay* increased from force 4 to hurricane force, it is almost certain that the | Position and chief features of storm on the 20th.

Weather in the Bay of Bengal.

The following table gives 8 A.M. data of the Bay of Bengal for the 20th, extracted from the logs of vessels in the Bay on that date :—

Ship.	Position.		Barometer.		Wind.		Sea.	Weather.
	Latitude N.	Longitude E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches	Inches				
S. *Victoria Regina* .	0 58	88 42	...	...	E.	4	...	Cloudy.
S. *Eleiser* .	2 49	92 42	..	...	S.-E.	...	...	
S. *Jupiter* .	3 42	91 55	...	...	S.-E.	...	...	
S.S. *Landaura*	5 49 (Noon.)	80 31	30·00	29·88	S.-W.	...	...	Cloudy, with occasional showers
S. S. *Katoria*.	5 52 (Noon.)	99 37	29·94	29·91	E.	2	Smooth.	Fine.
S. S. *Nizam*.	Colombo		30·20	29·88	S.-W.	3	...	Fine and cloudy.
S. S. *Khandala* . .	7 48	79 20	30·30	29·88	S.-W.	2	...	Fine.
S. *Baron Elibank* .	8 0	84 15	...	...	N.-W.	8	Cross sea from N. to N.-E.	Squally, overcast.
S. S. *Camorta*	8 49 (Noon.)	82 4	29·67	29·84	W.	4	...	Fine and clear.
S. *Loch Broom*	11 49	91 42	...	...	S.-S.-W.	...	S.-W. swell.	Cloudy and squally weather.
S. *Mobile Bay*	12 3	88 0	...	...	S.-S.-E.	...	...	8 A.M., wind blowing a hurricane.
S. *Forteviot* .	13 25	89 45	...	...	S.-E.	5	...	Hot, sultry weather.
S. S. *Scindia*.	50 miles S. of Coconada.		29·88	29·87	N.-N.-E.	6	Head swell.	
S. S. *Patialla*	Rangoon		...	...	...	2	...	Fine cloudy.
S. S. *Kola* .	Rangoon		30·04	29·86	...	...	...	
S. *Clive* .	Rangoon		29·93	29·86	Calm.	...	...	Clear.
S. *Lyndhurst*.	15 33	91 44	...	...	S.-S.-E.	6	...	Showery.
S. S. *Japan* .	15 44	92 31	30·08	29·85	S.	...	...	Cloudy, occasional squalls with rain.
S. S. *Shahjahan* . .	19 22	89 22	30·07	29·85	N.-E. by E.	4	S.-W. swell.	Cloudy.
S. S. *Kasara* .	21 35	...	29·99	29·87	N.-N.-E.	3	...	Fine, cloudy.
S. S. *Maharani* . .	Off Saugor.		29·86	29·88	N.-N.-E	2	...	Fine.
S.S. *Bhandara*	15 miles Calcutta		30·06	29·90	...	...	...	Fine.
S. S. *Kerbela* .	Coconada		30·03	29·89	N.	4	Heavy E. swell.	Fine.
S. S. *Fultala*.	Hooghly		30·07	29·90	N.	4	...	Fine and clear.
S. S. *Chanda*.	Near Rangoon.		30·09	29·85	N.-E.	2	...	Sky clear.

These observations show that to the north of Lat. 17° or 18° N. fine clear weather prevailed. To the south of Lat. 8° N. weather was cloudy with moderate south-east to south-west winds. Between these areas was a belt in which pressure was lower than either to the north or south, and in a portion of which squally stormy weather prevailed. The data of the 19th have shown that a cyclonic storm was developing rapidly on that day in about Lat. 11½° N. and Long. 87° to 88° E. Three vessels were in the immediate neighbourhood of that central area of disturbed weather on the 20th, *viz.*, the *Mobile Bay*,

Loch Broom and *Forteviot* The *Mobile Bay* passed early in the day into the central area, and encountered hurricane winds throughout the remainder of the day The following gives the whole of the information relating to the weather she experienced on the 20th — Observations on board the ship *Mobile Bay*

Hour	Position		Barometer uncorrected	Wind		State of Sea	Weather
	Latitude N	Longitude E		Direction			
			Inches.				
2 A M				S		High sea from north west	Sky overcast and unsteady wind
5 A M				S			Wind increasing squally with heavy rain
7 A M				S S E			
9 A M							Heavy squall struck the ship Rain less heavy
Noon	12° 3	85° 0					
2 P M			29 20	S E			
7 P M				S E			Main top sail blew away Ship lying with her lee rail under water almost on her beam ends
8 P M				E			Blowing hurricane The main sail blew away from the yard
11 P M				N E			Blowing with hurricane force

It should be noted that this information was obtained by the Port Officer, Rangoon, by personal enquiry. He also writes that the log was carelessly kept and that the barometer read about 25″ below the Calcutta standard The ship's position at noon of the 20th given in the log is Lat 12° 3′ N, Long 88° E It is not stated whether this position was determined by observation or by account, but probably the latter The extracts show clearly that the vessel passed rapidly during the day from the outer into the inner area of the intense cyclonic storm, and was carried round from the eastern to the northern quadrant between 2 P M and midnight She had unsteady winds in the morning, when she was not more than 80 miles to the south east of the centre, a strong proof that the storm area was of small extent.

The position of the storm centre at noon of the day was hence probably between Lat. 11¾° N and 12° N Long and between 87¼° E and 87¾° E If the positions assigned to the centre at noon of the 20th and at noon of the previous day be approximately correct, the storm centre had commenced to move slowly in a N-N E. direction during the previous 24 hours Also, judging from the brief interval (apparently less than eight hours, so far as can be judged from the extracts) during which the winds experienced by the *Mobile Bay* increased from force 4 to hurricane force, it is almost certain that the Position and chief features of storm on the 20th

storm proper, defined by the area in which winds were of force 8 or upwards, was as yet of very small diameter, and that this small storm area now formed the central feature of a large shallow depression which had covered the centre and south-east of the Bay during the previous four or five days.

These inferences are confirmed by the experience of the *Forteviot* and *Loch Broom*. The *Forteviot* was about 150 miles to the north-east of the centre at noon and advancing northwards up the Bay much more rapidly than the storm. She had at that hour south-east winds, force 5, and hot sultry weather. The S. *Loch Broom* was about 280 miles east of the centre at noon. She had light to moderate south-south-west winds, cloudy weather and occasional rain squalls.

The observations hence show that the cyclone had intensified, and that it was probably extending outwards from a small central area of disturbance which had formed in a large area of slight depression. Winds were light to moderate, and unsteady at distances not exceeding 150 to 200 miles in the south-eastern quadrant, usually that of the strongest winds in the earlier stages of cyclonic storms in the Bay. This is confirmed by the observations at Port Blair and the Cocos' Island given below:—

Station.		Barometer.		Wind.		Cloud proportion.	Rainfall in past 24 hours.
		Reduced to 32° and corrected to sea-level and constant gravity.	Change in past 24 hours.	Direction.	Average hourly velocity during previous 24 hours.		
		"	"		Miles		Inch
Port Blair	8 A. M.	29·842	—·009	S. S. E.	8	4	0·81
	4 P. M.	·741	—·032	S. S. E.	8	9	0·58
Cocos Island	10 A. M.	·844	—·023	S.	12	4	*nil.*
	4 P. M.	·752	—·033	S.	8	10	*nil.*

21st November. Plate XXIII.

21st November.—During the preceding 24 hours pressure had increased slightly over the whole of India except Sind. No important change had occurred in the weather in India except in Lower Burma, where the skies were now heavily clouded and moderate rain was falling generally. Over the remainder of the Indian area skies were clear, weather fine, and the air somewhat drier and cooler than usual. The distribution of pressure in the land area gave very feeble indications of the existence of the important depression in the Bay. Pressure was very uniform along the north and west coasts of the Bay, and was slightly in defect in Burma.

Weather in Indian land area.

The following table, giving pressure variation and anomaly data, shows the amount and extent of the local deficiency in North-Eastern India and Burma at this time —

Province	Mean variation of 8 A.M. pressure from normal	Anomaly	Average variation of mean temperature from normal	Mean cloud amount
	"	"	°	
Burma	— 043	— 011	+ 1 1	6 5
Bengal and Assam	— 054	— 022	+ 0 8	1 6
North Wes ern Provinces	— 022	+ 010	+ 0 4	0
Punjab	— 041	— 009	+ 1 4	1 2
Bombay	— 006	+ 026	— 1 7	0·2
Central Provinces	— 020	+ 012	— 0 3	0
Guzerat and Central India	— 0 8	+ ·004	+ 0 4	0
Sind and Rajputana	— 055	— 023	+ 1·0	0 2
Madras	— 020	+ 012	+ 0 2	1 7

The preceding data establish that the pressure conditions in the land area were similar to those of the 19th, the most important being the deficiency relatively to the normal in Burma and Bengal, and the excess in the Peninsula The local anomalies were not large, but were sufficiently marked and permanent to indicate persistent abnormal weather conditions in the east and north of the Bay

The following table gives 8 A M meteorological data of the 21st for eight stations on the coast of the Bay — Weather in coast districts of Bay

Station	Pressure			Wind		Cloud proportion	Rainfall in past 24 hours.	Weather
	Actual reduced to sea level and constant gravity	Change in past 24 hours	Variation from normal	Direction.	Average hourly velocity in past 24 hours.			
	"	"	"		miles			
Camorta	29 909	— 048	?	Calm	?	6	0·24	Cloudy
Port Blair	799	043	?	S	16	9	0 50	Strong wind.
Diamond Island	852	+ ·007	— 055	E N E	8	10	0 80	
Akyab	861	0	— 074	E	5	10	0 64	
False Point	·902	+ 008	—·066	N	10	5	Nil	
Vizagapatam	891	+ 0·0	—·054	N	4	4	Nil	
Madras	877	+ ·015	— 026	N	7	0	Nil	

These observations show that pressure was falling locally in the east of the Bay, and was rising on the north and west coasts but the rise was very small and of little importance

Showery weather had extended north as far as Akyab The most significant change in the weather was the large increase in the strength of the southerly winds blowing at Port Blair.

Weather in the Bay of Bengal.

The following table gives data of the Bay area extracted from the logs of ships:—

Ship.	Position.		Barometer.		Wind.		Sea.	Weather.
	Latitude. N.	Longitude. E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches.	Inches				
S. *Victoria Regina*	2 33	89 11	...	...	W.	4	......	Cloudy.
S. *Elciser* .	4 58	92 57	...	.	W. S. W.	...	......	......
S. *Jupitor* .	6 29	92 58	...	...	S. S. W.	...	......	......
S. S. *Landaura* .	6 55	82 20	30·00	29·87	N. W.	4	North swell.	Fine and clear.
S. S. *Pegu* .	7 47	72 2	29·87	29·87	Calm	...	......	Clear.
S. S. *Karamania*	9 23	80 55	30·02	29·86	S. S. E.	6	Heavy sea.	......
S. *Baron Elibank*	9 50	87 5	...	...	...	...	......	......
S. *Lapwing* .	9 52	75 55	30·11	...	S. E.	1	......	Fine.
S. S. *Japan* .	12 44	94 34	30·08	29·85	S.	5	South swell.	Cloudy; occasional squalls.
S. *Mobile Bay* .	Position not observed		...	...	N. W.	12	......	Hurricane.
S. S. *Patiala* .	15 7	92 30	...	...	...	...	......	Cloudy; heavy squalls.
S. *Loch Broom* .	15 18	91 16	...	...	S.	...	......	Dull.
S. S. *Shahzada* .	15 45	94 55	30·01	29·79	N. E.	2	......	......
S. S. *Shahjahan* .	16 31	91 43	29·90	29·85	E. S. E.	4	High swell.	Cloudy.
S. *Forteviot* .	16 42	89 36	...	...	E. N. E.	Unsteady	......	......
S. S. *Kerbela* .	Off Vizagapatam.		...	...	N. E. to N.	...	E-N-E. swell.	Fine and clear.
S. *Lyndhurst* .	17 02	91 32	...	...	S. S. E.	6	......	......
S. S. *Maharani* .	19 08	90 46	29·80	29·82	N. E.	4	Moderate sea	Heavy rain squalls.
S. S. *Bhundara* .	30 miles to the N. E. of Vizagapatam.		30·07	29·91	N. W.	4	......	Fine.

The preceding data show that weather was unchanged in the south of the Bay, where moderate west-south-west winds prevailed. In the north of the Bay winds were increasing in strength, skies were clouding over and weather becoming squally. This extension of cloudy qually weather was most marked in the north-east of the Bay off the Arakan coast.

Ships involved in storm during day.

The ship *Mobile Bay* was involved in the inner storm area, and the S. S. *Shahjahan* and *Patiala* and ship *Loch Broom* were in the outer area of the storm during the day.

The following gives a statement of the weather experienced by the *Mobile Bay*.— Ship *Mobile Bay*

Hour	Barometer		Wind,		Weather
	Actual	Corrected and reduced to sea level and constant gravity.	Direction	Force,	
	Inches	Inches.			
3 A M	28 5	28 9	N	Hurricane	Wind tore tarpaulins off hatches
7 A M	28·0	28 4	N. W.	Ditto	
10 A M.	...	.	W.	Ditto	
11 A M	27 8	28 2	W.	Ditto	
1 P M.	27·5	27 9	W	Ditto	
2 to 4 P M	...	...	Calm		Wind fell almost calm, high cross sea
4 P M.	27 5	27 9	S W	...	Gust of wind from south west. Wind then moderated for a short time, then blew hard from north west, increasing to hurricane force. The vessel broached to on the starboard tack about 5 P M

This is the whole of the information for the 21st, except that it is also stated that at 4 P M. the indication of the aneroid barometer went past the graduation, and the captain estimated that when lowest the reading was 27·0" (corrected 27·4").

The information hence shows that the *Mobile Bay* was at the mercy of the storm throughout the day. She was carried along with it, and passed from the western to the southern quadrant of the storm and thence drifted under the force of the winds and currents into the calm centre, and was retained there for about two hours, when she was left behind, apparently in the south-west quadrant. She had hurricane winds during the whole period, except during this interval of two hours when she was in the calm centre. It is doubtful how far the readings of her aneroid are to be accepted. Aneroid barometers are by no means reliable, even under the most favourable conditions, and hence the very low reading of the aneroid (27·00") can only be accepted so far as showing that pressure was very low in the central area, and almost certainly less than 28·00"

The S S. *Patiala*, which left Rangoon on the morning of the 20th was in latitude 15° 7′ N. and longitude 91° 47′ E. at noon of the 21st. She had moderate breezes and fine weather during the morning. In the afternoon the wind and sea began to increase and the barometer to fall, and at 4 P.M. the captain, judging that there was a storm in front of him in the centre of the Bay, turned his ship and proceeded slowly eastwards during the remainder of the day. The following S. S. *Patiala*

extract from her log gives the weather she experienced during the afternoon and evening:—

Hour.	Barometer.		Wind.		Weather.
	Actual.	Corrected and reduced to sea level and constant gravity.	Direction.	Force.	
	Inches.	Inches.			
2 P.M.	...	...	E.-S.-E.	4 to 5	Overcast, squally with rain. Wind and sea increasing. Heavy south-west swell, increasing and working to S.-S.-W.
4 P.M.	29·94	29·74	S.-E. by E.		......
7 P.M.	...	...	S.-S.-E. to S.-E. by S.	7	Moderate gale with heavy squalls and heavy S.-S.-W. swell.
9 P.M.	...	...	S.-E.		......
10 P.M.	29·96	·76	...	...	Moderate gale with terrific squalls. Lightning to N.-W.
Midnight	29·96	·76	...	...	Moderate gale with fine clear weather. Heavy S.-S.-W. swell.

S. S. *Baron Elibank.*

The S. S. *Baron Elibank* was about 150 miles to the south of the storm centre at noon. The following extracts from her log are interesting as showing the increasing strength of the in-draught:—

Hour.	Course	Barometer.		Wind.		Weather.
		Actual.	Corrected and reduced to sea level and constant gravity.	Direction.	Force.	
		Inches.	Inches.			
1 A.M.	N.-E.	...	...	W.	9	*Morning*—violent squalls with showers. High cross sea from N. and N.-N.-E.
4 A.M.	N -E.	29·95	29·68	...	...	......
10 A.M.	...	29·90	·63	...	...	......
4 P.M.	...	29·70	·43	W.	9	*Afternoon*—violent squalls and much rain; high cross sea which got steadily worse during the day.
10 P.M.	...	29·65	·38	W.	9	......

She was proceeding from Colombo to Rangoon and hence crossing the south of the Bay. Her log is interesting as it shows the strength and steadiness of the westerly winds at distances of 150 to 250 miles south of the centre at this time, and also the increasing intensity of the storm.

The ship *Loch Broom* was 300 miles to the north-east of the centre during the morning. She had cloudy weather with heavy squalls and a heavy swell from south-west during the day. Winds were steady at south during the greater part of the day.

The S. S. *Kistna,* which left Akyab at 9 A.M. for Chittagong, had light to moderate north-east breezes during the afternoon, with overcast skies and drizzling rain in the evening.

The preceding information is chiefly interesting as showing the very rapid increase in the intensity of the storm It is almost certain that on the 19th the storm was in the initial stage of squally weather in an area of nearly uniform pressure or of very shallow depression, and the strongest winds in or near this area did not exceed 5 in force On the morning of the 21st there was a deep depression, at the centre of which pressure was probably more than an inch below the normal A central calm area was in existence at 6 P M, and hurricane winds were experienced in the inner storm area The strongest evidence of the growth of the storm is the occurrence of winds of force 9 at distances of 150 to 250 miles from the storm centre The data are not sufficiently numerous or precise to enable the position of the centre to be fixed with certainty The various observations indicate that it was in Lat 12°45′ N and Long 88°30′ E at 8 A M It had hence probably advanced 190 miles in a north easterly direction during the preceding 24 hours

Chief features of the storm on the 21st

22nd November —The barometric changes of the preceding 24 hours were everywhere small in amount and made no important change in the distribution of pressure in the land area Pressure had increased slightly over nearly the whole of Western and Upper India and fallen in other districts The changes were less than ·05″ at all stations except Diamond Island (— ·054″), False Point (— ·051″), and Roorkee (— ·051″)

22nd November

Plate XXIV

The land observations showed that there was a depression to the south west of Lower Burma, but gave no indications of its extent or intensity Skies were overcast in Burma and were clouding over in East and South Bengal They were clear in the remainder of the land area Light to moderate rain had fallen during the previous 24 hours in Lower Burma The following table gives the chief data —

Weather in Indian land area.

Province	Mean variation of 8 A M pressure from normal	Pressure anomaly	Average variation of mean temperature from normal	Mean cloud amount.
	″	″	°	
Burma . .	— ·060	— ·01[illegible]	—2·9	2 5
Bengal and Assam	— ·[illegible]4	— ·040	+ 0 7	1 9
North Western Provinces	—·0[illegible]4	— 0 1	+ 0 4	0
Punjab . .	— 0 6	— 12	+ 0 5	0·5
Bombay . .	— ·007	+ ·037	—2 2	0·3
Central Provinces	—·035	+ ·00[illegible]	—1 3	0
Guzerat and Central India	— ·032	+ ·0[illegible]2	—0 5	0
Sind and Rajputana .	—·043	+ ·001	0	0 2
Malabar . .	— ·0[illegible]	+ ·015	—1 3	0 5

Weather at coast stations of Bay.

The following statement is a summary of 8 A.M. observations taken at seven representative coast stations :—

Station.	Pressure. Actual reduced to sea-level and constant gravity.	Pressure. Change in past 24 years.	Pressure. Variation from normal.	Wind. Direction.	Wind. Average hourly velocity in past 24 hours.	Cloud proportion.	Rainfall in past 24 hours.	Weather.
	″	″	″		Miles.		Inches.	
Camorta . .	29·921	+·014	?	Calm	?	10	0·36	Dark, gloomy.
Port Blair . .	·769	—·030	—·120	S. S. W.	17	6	0·47	Squally.
Diamond Island .	·798	—·054	—·116	E. S. E.	20	9	0·37	Sea rough.
Akyab . . .	·877	+·016	—·064	E.	5	10	0·47	Overcast with rain.
False Point . .	·901	—·001	—·072	N.	17	5	*N*	
Vizagapatam .	·880	—·011	—·071	N. W.	3	...	*N*	
Madras . .	·880	+·003	—·028	N.N.W.	5	...	*Nil.*	

These observations show that pressure continued to give way in the east of the Bay, whilst it was steady or increasing slightly in the Peninsula. The depression was hence more clearly defined by the land observations than previously. The great increase in the strength of the winds at Diamond Island and the shift of wind from east-north-east to east-south-east also indicated that the storm was advancing northwards up the Bay. Skies had cleared over the whole of the Madras coast. Heavy rain was now commencing in Burma. The following large amounts were registered at 8 A.M. :—

District.	Station.	Amount in Inches.
Thongwa .	Maubin . .	3·23
	Wakema .	3·39
	Dedayè . .	3·11
Bassein . .	Labutta . .	3·40
	Diamond Island .	3·37

Weather in the Bay of Bengal.

The following gives 8 A.M. observations taken on board ships in the Bay on this day :—

Ship.	Position at 8 A.M. Latitude. N.	Position at 8 A.M. Longitude. E.	Barometer at 8 A.M. Actual.	Barometer at 8 A.M. Corrected and reduced to sea-level and constant gravity.	Wind at 8 A.M. Direction.	Wind at 8 A.M. Force.	Sea.	Weather remarks.
	4 ′	° ′	″	″				
S. *Victoria* .	u 3	89 17	...	...	W.	4	...	Cloudy.
S.S. *Nizam* .	9 35	81 45	30·10	29·88	N.	3	...	Fine.
S.S. *Japan* .	28	96 43	30·10	29·87	S.	4	...	Fine and clear.

Ship.	Position at 8 A M		Barometer at 8 A M		Wind at 8 A M		Sea.	Weather remarks.
	Latitude. N.	Longitude E	Actual.	Corrected and reduced to sea level and constant gravity	Direction	Force.		
			Inches	Inches				
S S *Landaura* .	9 38	83 11	29 97	29 84	N E	6	N.E. swell	Fine and clear.
S S *Camorta* .	Negapatam		.	.	N E.	4	.	Clear
S. S *Shahjahan*.	13 16	93 23	29·85	29 80	S S E	6	..	Cloudy and squally
S *Latham* .	14 38	89 30	.		S E	2		Fine.
S. S *Patiala* .	15 50	93 53	29·97	29·77	S S E	9	...	Fine cloudy (strong gales with very heavy squalls in evening)
S. *Mobile Bay* .	Position not given		27 20	27 60 ?	?	12	..	Hurricane
S. S. *Kerbela* .	Callingapatam		30·06	29 88	N to N W	4		Fine clear
S S *Bhandara* .	17 55	83 15	30 04	29 88	N W	4	...	Fine.
S. S *Lyndhurst* .	18 0	91 30			Calm			Fresh E-N-E breeze in evening
S. *Forteviot* .	18 20	89 15	29 53	29·74 ?	E N E.	...		Unsteady winds and cloudy
S *Loch Broom* .	18 31	89 28	.		E	5		Squally
S. S *Shahzada* .	18 38	92 97	..		E	8		Heavy rain, squally
S S *Maharani* .	18 50	90 30	29 76	29 78	E S E	7	High sea	Heavy clouds
S S *Sirsa* .	Near Rangoon		29 90	29 87	N N W.			
S. S *Scindia* .	Vizagapatam		29 90	29·88	N E		Heavy swell from N E	...
S S *Palamcotta*.	..	?	29 96	29 93	N E	..	.	Fine cloudy.
S S *Nancowry* .	30 miles S. S E. off Sandheads			...	N E.		Swell from E N E	
S S *Comillah* .	Chittagong .		..	...	Calm	0		Overcast.

These observations establish in the first place that no change had occurred in the weather over the south of the Bay and in the north-west of the Bay, where moderate winds and fine clear weather continued.

The storm area in the centre of the Bay had evidently increased considerably in extent. The various observations when charted as in the chart of the day indicate that the centre was in Lat 14° N and Long. 89¾° E at 8 A M. Assuming these positions, the steamers *Patiala*, *Shahzada*, and *Maharani*, at distances of 200 to 300 miles to the south of the centre, had winds of force 7 to 9. The outer storm area

had hence extended or expanded very considerably during the past 2 hours, and the storm was now of considerable extent. The expansion of the storm area is confirmed by the observations at the nearest land stations, of which the following is a summary :—

STATION.	PRESSURE.			WIND.		Cloud proportion.	Rainfall in past 24 hours.	WEATHER.
	Actual reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.			
	"	"	"		Miles.		Inches.	
Port Blair .	29·769	—·030	—·120	S. S. W.	17	6	0·47	Cloudy.
Cocos Island .	29·746	—·077	—·150	S.	?	10	*Nil*	Overcast.
Diamond Island.	29·795	—·054	—·116	E. S. E	20	9	3·37	Sea rough.

Diamond Island was 270 miles to the east-north-east and Port Blair 240 miles to the east-south-east of the centre at 8 A.M.

Ship *Mobile Bay.*

The only vessel which was near the centre of the storm on the 22nd was the *Mobile Bay*. Her position is not given in the log, as it was not possible to take any observations. She was involved in the calm centre between 2 and 4 P.M. of the previous day and was left behind in the south-west quadrant.

The following gives extracts from her log of the weather she experienced on the 22nd :—

HOUR.	BAROMETER.		WIND.		Weather.
	Actual.	Corrected.	Direction.	Force.	
5 A.M.	...	...	...	Hurricane.	Wind lulled a little, but it was impossible to state the direction as lights could not be kept going.
6 A.M.	...	...	...	Ditto .	Wind came in gusts. The mainmast snapped off, and was shortly after followed by the foremast.
2 P.M.	27 50	27·90 ?	...	Ditto .	......
5 P.M.	27·50	27·90 ?	...	...	Weather began to moderate.
9 P.M.	..	...	...	...	Barometer rising, high cross sea.

It is also stated in the account that the mainmast snapped off about 6 feet above the deck, but the foremast went below the deck, and, as it fell, it burst up the deck. Everything was hence in a state of terrible confusion.

As no wind directions are given in the statement, it is hence not possible to state with certainty her position with respect to the storm centre during the day. It is almost certain that after she passed out of the calm centre into the southern quadrant, she

drifted with the winds and current to the north-east but was gradually left behind by the storm. She was within the inner storm area during the greater part of the day and did not pass out until the evening. She had light westerly winds at 2 A.M of the 23rd.

S. S. *Patiala.*

The *Patiala* was about 220 miles to the east-north-east of the centre and steaming slowly in a direction nearly parallel to the storm track. The weather hence became gradually worse during the day. The following gives the chief data for the day in her log:—

Hour.	Barometer		Wind		Weather
	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force.	
	Inches.	Inches.			
4 A.M.	29·94	29·74	S S E	4 to 5	Moderate to fresh gale Fine cloudy weather with occasional hard squalls. Heavy S-S-W. swell
8 A.M.	29·97	·77	S S E	..	Moderate to strong gale Sky cloudy Heavy S.-W swell
Noon	29·96	·76	S E.	...	Moderate gale Heavy sea from S.-E.
4 P.M.	29·95	·75	S E. by E.	.	Fresh gale and overcast with hard squalls and rain Heavy S.-E. sea and S W swell Turned ship round and went W S.-W. until 9 P.M., when original course resumed
8 P.M.	29·94	·74	S E. by S	...	Fresh to strong gale with very heavy squalls Heavy confused sea.
Midnight.	...	...	S E.	...	Whole gale to storm with very heavy sea

The centre at midnight was in about Lat. 15½° N. and Long. 91¾° E., at which hour the *Patiala* was not more than 80 or 90 miles to the east The fact that she experienced a whole gale to a storm at that distance from the centre is an additional proof of the large extension of the inner and outer storm areas which had taken place during the day.

S. S. *Canara.*

The S. S. *Canara*, which left Rangoon early in the morning for Calcutta, had moderate to fresh winds until 8 P.M., when the wind began to strengthen and squalls to come down At 9 P.M., the weather looked very threatening and became rapidly worse and worse. At midnight when the ship was probably a little to the south-east of Diamond Island, she had a heavy gale from south-south-east, with a violent sea and terrific squalls of wind and rain. The captain notes that at 11-15 P.M. the Alguada light bore N. ½ W. and was distant 12 miles She was hence about 170 miles nearly due east of the

storm centre at that hour. The following gives the whole of the meteorological information for the day in her log:—

Hour.	Barometer.		Wind.		State of sea.	Weather.
	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	Inches.	Inches.				
8 A.M.	29·85	29·88	S. E.	5	...	Overcast.
Noon	·84	·87	S. E.	5	...	Rain throughout.
4 P.M.	·75	·78	S. E.	4	...	Light rain at times.
8 P.M.	·78	·81	S. S. E.	6	Confused.	Passing squalls and overcast. South-east swell.
9 P.M.	·76	·79	S. S. E.	...	Sea rising.	Weather looking very threatening. Barometer falling, and weather getting worse.
Midnight	·70	·73	S. S. E.	...	...	Heavy gale, with violent sea and terrific squalls of wind and rain. Ship rolling and pitching.

Inferences from data of 22nd.

The preceding data have hence shown that the storm increased in extent during the day. The centre at 8 A.M. was in Lat. 14° W. and Long. 89¾° E., and had travelled during the preceding 24 hours at an average rate of nearly 6 miles per hour.

The increasing extent of the storm was fully shown by the logs of several vessels, and the observatories at Port Blair and Diamond Island. These observations establish that winds were of force 8 (moderate gale) and upwards at distances of at least 300 miles from the centre in the south quadrant, and to distances of 150 to 200 miles in the north and east quadrants. There were no ships in the western quadrant of the storm near the centre. The nearest were the *Bhundara* and *Kerbela* at a distance of 400 miles and near the coast of the Circars where winds were light to moderate and weather very fine and clear, the only indication of stormy weather in the Bay being a "heavy swell from the north-east." The only vessel which furnished data showing the actual intensity of the storm was the *Mobile Bay*.

23rd November. Plate XXV.

23rd November.—In the discussion of the weather of the 22nd it was stated that the centre at 8 A.M. was in Lat. 14° to 14¼° N. and Long. 89¾° E., and at midnight it was in Lat. 15¼° N. and Long. 91¾° E. It had hence advanced about 170 miles during the previous 16 hours, and was hence moving with a rapidly increasing rate. Its average speed during this interval was between 10 and 11 miles per hour. The centre at midnight was 200 miles west by south from Diamond Island and was advancing in a north-east direction (N. 55° E.).

Meteorology of Indian land area.

The advance of the storm during the preceding 24 hours towards the Arakan coast had caused a large reduction of pressure in Lower Burma and Arakan. Pressure had, on the other hand, increased in the Peninsula and North-Western India, and fine clear weather, with light winds, obtained generally in that area. The wind directions at-

the Madras coast stations had a strong westerly component caused by the disturbance in the Bay The air was hence unusually dry and skies almost free from cloud

Skies were overcast in Burma, and were more or less clouded over the greater part of Bengal and Assam

Observations at coast stations of the Bay

The following gives 8 A M observations at the land observatories nearest to the storm centre at that hour —

Station	Pressure			Wind		Cloud 8 A M	Rainfall in past 24 hours.	Weather
	Actual reduced to sea level and constant gravity	Change in past 24 hours	Variation from normal	Direction.	Average hourly velocity in past 24 hours			
	"	"	"		Miles		Inches	
Fort Blair	29·789	+ ·050	[illegible]	W S W	17	5	0·25	Squally
Cocos Island	29·793	+ ·047		W	7	10	2·77	Overcast.
Diamond Island	29·731	— ·077	— ·101	S S W	31	10	3·17	Sea tremendous
Bassein	29·734	— ·122	— ·10	S E	16	10	3·53	Continuous rain
Rangoon	29·787	— ·00	— ·147	E S E.	7	0	0·83	Drizzling.
Thayetmyo	29·783	—·011	— ·073	N.	10	10	0·57	Continuous rain
Akyab	29·784	— ·003	— ·04	N E.	7	0	1·36	

The observations indicate that the centre was to the north-west of Diamond Island at a moderate distance (about 100 miles). Its most probable position at 8 A M was in Lat 16½° N and Long 93° E, or at a distance of about 125 miles to the north east of its position at midnight Its mean velocity during the previous eight hours was 16 miles, and hence its rate of motion was still rapidly increasing

The following gives a summary of the observations taken at Diamond Island during the storm —

Date and Hour.	Barometer corrected	Wind		Cloud amount	Rainfall since last observation	Weather
		Direction	Velocity during interval since preceding observation			
	Inches.		Miles.		Inches.	
22nd 2 P M	29·715	E S E.	..	9		Wind increasing in force Sea very rough
8 P M	·714	E	37	10	0·03	Squalls increasing in frequency and force Sea very rough
10 P M	·665	E	44	10	0·02	Hurricane winds Sea tremendous
23rd, 2 A M	[illegible]	S E	32	10	[illegible]	Wind blowing in violent puffs; occasional rain Wind variable
8 A M	[illegible]	S	35	10	2·15	Terrific squalls; sea tremendous. Dark gloomy weather
11 A M	[illegible]	S S W	15	10	0·23	Squalls decreasing in force and frequency
2 P M	[illegible]	S S W	14	9	0·01	Sea falling
5 P M	·700	S W	10	10	[illegible]	Weather again getting squally
8 P M	·757	S W	11	3	[illegible]	Fine with passing clouds
11 P M	[illegible]	W S W	4	1	[illegible]	Do. do. do.

The storm centre was probably due west of Diamond Island about 3 A.M., at which time it was 140 miles distant. The strongest winds were apparently experienced between 10 P.M. and 2 A.M. It is hence probable that, as the storm was now rapidly approaching the Arakan coast, the intensity of the southerly winds was beginning to diminish in consequence of having to pass in part over a land area before approaching the centre.

8 A. M. observations in the Bay of Bengal.

The following gives a summary of 8 A.M. observations taken on board vessels in the Bay :—

Ship.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		Sea.	Weather remarks.
	Lat. N.	Long. E.	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.		
	° ′	° ′	Inches.	Inches.				
S. S. *Sirdhana*	2 26	82 31	30·05	29·86	Calm	...	...	......
S. *Victoria Regina* .	5 20	89 17	...	...	W.	4	...	Drizzling rain.
S. S. *Nizam* .	8 50	81 20	30·10	29·88?	N.	3	...	Passing clouds.
S. *Jupiter* .	10 49	92 14	...	...	W. S. W.	...	...	......
S. S. *Camorta*	At anchor, Cuddalore.		...	...	N. N. E.	2	...	Fine.
S. S. *Landoura* . .	12 38	83 42	29·97	29·85	N. N. W.	4	Heavy N. E. Swell .	Fine and clear.
S. S. *Mobile Bay* . .	14 30	92 0	...	...	W.	2		......
S. S. *Sirsa* .	14 6	96 45	29·90	29·87	S. S. E.	5	...	Cloudy.
S. S. *Bhandara* . .	At anchor, Coconada.		...	...	...	1	Heavy E. swell .	......
S. *Forteviot* .	18 5	89 30	...	...	N. E.	...	Heavy sea	......
S. S. *Scindia* .	At anchor, Viragapatam		...	...	...	2	...	Fine.
S. S. *Palamcotta* . .	19 15	89 46	29·86	29·83	N.". by E.	5	Heavy sea	......
S. S. *Kasara* .	Off Akyab		29·92	29·80	E. N. E.	6	Heavy sea from S. .	Constant drizzling rain.

The information of the weather in the Bay on the 23rd is very scanty. The storm was now approaching the Arakan coast, and the circulation in the south and east quadrants was impeded by the broken ground of the Arakan ranges. The observations appear to indicate that the circulation had already decreased very considerably in intensity. In the west and north-west of the Bay winds were light, and in the east of the Bay they were moderate to fresh except in the immediate neighbourhood of the storm centre, where violent winds still probably obtained.

Ship *Mobile Bay.*

The *Mobile Bay* was left behind in the southern quadrant of the outer storm area on the evening of the previous day. She was

then a complete wreck on deck. The following gives the weather she experienced on the 23rd.—

Hour	Barometer.		Wind		Weather
	Actual.	Corrected and reduced to sea level and constant gravity	Direction	Force	
	Inches	Inches			
2 A.M.	28.00	28.40	...	..	Weather moderating
9 A.M.	.	...	W	2	Light wind; sea going down.
Noon .	28.80	29.20			Light breeze, cloudy
1 P.M.	29.00	29.40	W	2	Cloudy
8 P.M.	..	...	W	2	Cloudy. Passing showers of rain

Observations taken on the 24th showed that she was in Lat. 14° 50′ N. and Long. 92° 24′ E. Her position at noon of the 23rd was probably not more than 30 miles to the south-west.

The Port Officer, Rangoon, makes the following remarks about the state of the vessel on her arrival there:—

"The substance of the *Mobile Bay* paper is culled from the log-book by myself and is the best information that could be gathered from it. I cannot help being astonished at the miraculous escape this vessel had. She was insufficiently [illegible] most of the time as she sailed [illegible] vessel with sinking [illegible] rated with water when he found he was involved in a cyclone."

The reading of the aneroid (29.00″) when she passed out of the storm into fine weather is extremely low and shows that the correction had altered considerably and, as already stated, that the readings during the storm are hence more or less unreliable. The Port Officer, speaking of the aneroids on board the *Marpesia* and *Mobile Bay* says:

"I have to inform you that both these vessels are small and indifferently fitted out with instruments. However, as they do not appear to have made much use of them, it makes no difference. From all accounts their aneroids behaved in a very extraordinary manner and very little reliance can be placed on the readings. That belonging to the *Mobile Bay* I found ".25" too low on comparing it with mine, which is correct with Calcutta standard. Its dial graduation commences at 27.50″, but by a remark in the log-book the indicator was about .50 below that for some hours. I noticed a mercurial barometer in this vessel, but the master informed me that the mercury disappeared during the cyclone and I had just commenced to rise again. On examination I found the instrument had received considerable injury by contact with the skylight in which it was hung."

The S. S. *Canara*, *Palitana*, and *Cerulla* were within the storm area in the morning.

The S. S. *Canara* which was near the Alguada Light at [illegible] night of the 23rd was rapidly approaching the cyclone at that hour. The captain altered his course from west to south [illegible]

8 P.M. of the 23rd, when he turned the ship and proceeded full speed. The following gives extracts from the log of the *Canara* :—

Hour.	Barometer.		Wind.		Weather.
	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.	
	Inches.	Inches.			
1 A.M.	29·64	29·67	S. S. W.	...	Weather getting worse, if possible, with heavy thunder and vivid lightning to southward.
4 A.M.	·60	63	S.	...	Similar weather, seas doing more damage on deck. Vessel at times buried in seas, flooding saloon, etc. Sea from S. W.
6 A.M.	·70	73	S. to S. S. W.	...	Barometer rose from 29·65″ to 29·70″ in half an hour. Wind going to S. S. W. Sky dull blue grey and dense clouds to S. W.
8 A.M.	·74	77	S. to S. S. W.	...	Strong gale and heavy sea with blinding rain squalls.
11 A.M.	·78	81	...	...	Sky clearing a bit and showing blue sky with heavy squalls at times.
Noon.	·78	81	Ditto	...	Similar weather; violent squalls of wind and rain very frequently.
4 P.M.	·74	77	...	...	Wind and sea again rising.
8 P.M.	·78	81	S. W.	...	Weather clearing and sea falling.
Midnight.	·85	86	S. W.	...	Moderate breeze and sea.

The *Canara* had very bad weather in the morning, with violent rain squalls. The weather began to clear in the afternoon and the captain hence at 8 P.M. altered his course, and proceeded full speed north-westwards across the Bay to the Hooghly. She had moderate breezes during the remainder of the night, and fine clear weather on the 24th.

S. S. *Patiala.* The S. S. *Patiala* passed through the southern quadrant of the storm in the morning. She was proceeding from Rangoon to Calcutta and passed the Alguadas late in the preceding evening :—

Hour.	Barometer.		Wind.		Weather.
	Actual.	Corrected and reduced to sea-level and constant gravity.	Direction.	Force.	
	Inches.	Inches.			
1 A.M.	...	...	S. E.	...	......
2 A.M.	...	...	...	...	Whole gale to storm with heavy squalls and rain. High cross sea and heavy S. W. swell.
3 A.M.	...	...	S.	...	......
4 A.M.	29·76	29·56	S. S. W.	...	... ..
5 A.M.	...	...	S. W.	...	......
6 A.M.	...	...	W. S. W.	...	......
7 A.M.	...	...	W.	...	Storm to hurricane with very heavy sea from westward.
8 A.M.	...	...	W. N. W.	...	......
9 A.M.	...	...	N. W.	...	......
10 A.M.	...	...	...	...	Wind and sea moderating; weather clearing up.
1 P.M.	...	...	W.	...	......

Hour	Barometer		Wind		Weather
	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force	
	Inches	Inches			
3 P M			W N W		Light to moderate breeze and fine cloudy weather, heavy N N W swell
4 P M	29 92	29 72	W N W		..
7 P.M		..	N W		Light breeze and fine clear weather N N W swell and passing clouds.
8 P M	30 01	29 81	N W		..
11 P M	..				Light breeze and fine clear weather
Midnight	30 02	29 82	N W		..

The S S *Patiala* was nearest to the centre at 7 A M The wind, which was at south east at 1 A M, veered steadily through south and south west to west at 7 A M, when she had hurricane winds, with a very heavy westerly sea In consequence of the north-easterly advance of the storm and of the *Patiala* passing rapidly into the westerly quadrant, the weather improved very quickly At 10 A M the wind and sea were moderating, and at 3 P.M she had passed into fine weather with light to moderate breezes At 7 P M she had fine clear weather and light north west breezes, which continued during the remainder of the voyage

The *Comilla*, proceeding from Chittagong to Rangoon, was in the northern quadrant of the depression in the morning — S. S Comilla

Hour	Position		Barometer		Wind		Weather.
	Latitude N	Longitude E	Actual	Corrected and reduced to sea level and constant gravity	Direction	Force	
	° ′	° ′	Inches	Inches			
4 A M	20 20	91 57	29 96	29 76	N 83° E	5	Overcast heavy south westerly swell.
8 A.M.	19 50	92 3	29 96	76	N 83° E	5–6	Sky clear heavy cross sea
Noon	19 22	92 13	29 92	72	N 60° E	6–7	Sky clear overhead, but large mass of light cloud on horizon. Heavy confused sea
4 P M	18 48	92 30	29 90	70	N 47° E	7	Heavy dark clouds to windward Heavy sea and confused swell from S E
8 P M	18 8	92 20	29 95	75	N N E	6	Clearing to windward Heavy sea.
Midnight	17 31	92 16	30 01	81	N N E.	5	Weather finer wind and sea moderating

The *Comilla* was about 100 miles to the north of the centre at 8 A M She had clear skies during the greater part of the day with a heavy confused sea and fresh to strong winds During the day at

wind direction backed from east to north-north-east. Her experience shows that weather improved rapidly off the Arakan coast on the afternoon and evening of the 23rd.

4 P. M. observations at coast stations.

The following gives observations of the coast stations at 4 P.M. of the 23rd November:—

	Pressure.			Wind.		Cloud proportion.	Weather.
	Actual reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average velocity 8 A.M. to 4 P.M. miles per hour.		
	"	"	"		Miles.		
Port Blair .	29·758	+·057	—·147	W. S. W.	32	2	Misty.
Diamond Island	·699	—·005	—·118	S. S. W.	13	7	Cloudy.
Akyab . .	·716	—·089	—·121	N. N. E.	8	9	Ditto.
Rangoon . .	·756	—·037	—·062	S. S. E.	9	10	Ditto.

The information is very limited, as the great majority of the observatories in Burma only record 8 A M. observations. The observations show that the storm had passed inland, and that rain had ceased to fall in the Arakan coast districts. Heavy rain was falling in Lower Pegu due to the strong southerly winds blowing up the Irrawaddy Valley.

Inferences respecting advance of storm.

The data hence establish that the storm centre was due west of Diamond Island at 3 A.M., and was in Latitude 18½° and Longitude 89¾° at 8 A.M. It crossed the coast some distance south of Sandoway shortly after noon, probably about 2 P.M. or 3 P.M. Its rate of motion had increased very considerably during the previous 36 hours and it was almost certainly travelling at a rate of at least 16 miles on the morning of the 23rd. The observations indicate that it began to fill up rapidly as it approached the Arakan coast, and that it was probably of moderate intensity when crossing the Arakan hills on the afternoon and evening of the 23rd.

24th November.

24th November.—The storm centre, as has already been seen, crossed the Arakan coast on the afternoon of the previous day, nearly midway between Akyab and Diamond Island, and probably a little south of Sandoway. It was then advancing in a north-easterly direction towards the Arakan hills, which are in this part comparatively low, not exceeding 2,000 or 3,000 feet in elevation.

8 A.M. observations in storm area in Burma.

The 8 A.M. observations of the 24th show that the storm was almost completely broken up by its passage across those hills, and that it was then a very shallow and diffused disturbance, affecting the whole of Lower and Central Burma.

The following give 8 A.M. observations in that area :—

	Pressure.			Wind.		Cloud proportion.	Rainfall in past 24 hours.
	Actual reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.		
	"	"	"		Miles.		Inches
Tavoy . . .	29·918	+·021	?	Calm	1	4	0·14
Port Blair . .	·883	+·064	?	N W	16	2	*Nil.*
Diamond Island .	·853	+·132	—·073	W.N.W.	9	4	0·04
Bassein . . .	·862	+·128	—·071	S.	11	10	0·61
Rangoon . .	·844	+·057	—·098	S S W	?	8	2·41
Tounghoo . .	875	+·009	—·072	Calm	3	10	0·98
Thayetmyo . .	·899	+·026	—·053	N	14	10	3·32
Mandalay . .	·030	—·013	?	N E	..	10	0·66
Akyab . . .	·865	+·081	—·089	N E	4	...	*Nil*

These observations establish that there was a very shallow depression in Lower Burma. Pressure was apparently lowest at Rangoon, but the observations at that station have not been very satisfactory for some time, and it is doubtful whether the 8 A.M. reading of the barometer on this day is quite correct.

The air movement was very irregular as well as light, and indicated that the cyclonic circulation had completely broken up, and that the normal winds of the season continued in Upper Burma Southerly to westerly winds prevailed in Lower Burma, a residual effect of the storm which passed rapidly away during the day.

Skies were more or less heavily clouded in Burma, and were clear over the whole of India except South Madras, where they were lightly clouded.

The storm gave moderate to heavy rain to Burma during the previous 24 hours.

The following gives a statement of the rainfall registered at 8 A.M of this day :—

Division.	Average actual rainfall for 24 previous hours.	Heaviest Rainfall in Division in 24 hours.	
		Amount.	Station at which recorded.
	Inches.	Inches.	
Tenasserim . .	0·68	4·55	Thaton
Lower Burma . .	0·65	[illegible]	Kyaukkyan.
Central Burma . .	2·49	10·18	Myanaung.
Upper Burma . .	0·35	2·33	Pyinmana.
Arakan . . .	0·53	3·54	Sandoway

8 A.M. observations in the Bay of Bengal.

The following table gives 8 A.M. observations taken on board vessels in the Bay on the 24th:—

Ship.	Position at 8 A.M.		Barometer at 8 A.M.		Wind at 8 A.M.		Sea.	
	Latitude. N.	Longitude, E.	Actual	Corrected and reduced to sea level and constant gravity.	Direction.	Force.		Weather Remarks.
	° ′	° ′	Inches.	Inches.				
S. *Victoria Regina*	6 30	89 17	...	...	W.	6	......	ıludy.
S. S. *Khandala* .	8 30	81 45	30·34	29·91	N. W.	2	......	ne.
S. S. *Sirsa* .	11 25	97 0	29·96	29·91	E. by S.	4	......	Fine and clear.
S. S. *Clan Grant*	11 40	80 42	30·13	29·90	W	...	......	...
S. *Jupiter* .	13 30	92 0	...	...	W	...	......	...
S. S. *Landaura* .	15 37	84 54	29·98	29·86	N. E.	...	Swell from N. E.	Showery.
S. S. *Pallamcotta*	16 46	92 57	29·97	29·87	N. E.	5	......	Fine and clear.
S. S. *Maharani* .	17 44	92 1	29·84	29·86	N. E.	3	......	Clear.
S. *Forteviot* .	18 2	90 16	...	...	N. W.	1	......	Faint airs and calm.
S. *Loch Broom* .	19 30	89 32	...	...	N. E.	...	......	Fine and clear.
S. S. *Kasara* .	Off Kyoukphyoo		...	...	N. E.	2	......	Fine.
S. S. *Bhandara* .	Vizagapatam		30·10	29·94	N. E. N. N. W.	2	......	Fine; passing clouds.

These observations indicate that fine weather was completely re-established in the Bay area. Light to moderate north-east winds obtained over the greater part of the area. The S. S. *Kasara*, off the South Arakan coast, had light north-east winds, force 2, and fine weather, and the S.S. *Maharani*, about 100 miles west of Sandoway, at 8 A.M. had fine weather, with clear skies and north-east winds, force 3. The marine data hence confirm the inference, based on the land observations, that the storm had broken up rapidly during the previous afternoon and evening, when crossing the Arakan hills, and that it was transmitted across into Central Burma as a disturbance of slight intensity.

Final breaking up of storm on night of 24th.

The following 8 A M. observations on the 25th at the Burma stations establish that the disturbance had passed completely away and that normal conditions were re-established in that area :—

	Pressure.			Wind.		Cloud proportion.	Rainfall in past 24 hours.
	Actual reduced to sea-level and constant gravity.	Change in past 24 hours.	Variation from normal.	Direction.	Average hourly velocity in past 24 hours.		
	"	"	"		Miles.		Inch.
Tavoy . .	29·963	+·045	?	W.-N.-W.	2	8	0·10
Diamond Island .	·940	+·087	+·011	E.-N.-E.	8	10	0·02
Bassein . .	·964	+·102	+·026	E.-N.-E.	5	8	0·01
Rangoon . .	·976	+·086	+·032	E.-N.-E.	4	10	0·22
Toungho . .	30·001	+·126	+·050	N.	2	10	0·63
Thayetmyo .	·022	+·123	+·067	N.	5	5	...
Mandalay . .	·026?	+·074	?	N.	?	8	0·03

Burma received moderate rain during the previous 24 hours Skies cleared during the day and normal conditions of pressure, temperature, winds and weather set in and continued during the remainder of the month

Nothing is known of its origin, except that it appears to have formed in the Gulf of Siam and not to have passed into that area from the China Sea. Dr. Doberck, of the Hongkong observatory, the chief authority on typhoons in the Chinese Sea, furnishes almost conclusive evidence on this point, and also adds that it is most unusual for a storm to advance from the Gulf of Siam and pass across Lower Siam and Tenasserim into the Bay of Bengal. The storm was hence probably an example of a class of storms of very rare occurrence in India, *viz.*, storms originating in the Gulf of Siam (or the China Sea), and passing thence into the Bay of Bengal as fully developed cyclones or typhoons. I have examined the lists of cyclones in the Bay of Bengal drawn up first by Mr. Blanford and continued by myself, and so far as can be judged from the meagre details of many of the earlier storms, almost certainly not more than three or four storms of this class have been recorded from the year 1737 up to the present time which may have advanced across the Malay Peninsula into the Bay of Bengal.

The following gives a brief statement of all these storms in the Bay of Bengal which may have passed into the Bay from the Malayan Peninsula, taken from the records of the Calcutta Meteorological Office.

No.	Year.	Date.	Description.
1	1840	Nov. 21st	Storm to the north-east of the Andamans.
2	1844	Nov. 9th—14th	Storms to the east of the Andamans. The troopships *Briton* and *Runnymede* were dismasted in this storm and wrecked on the Andamans.
3	1872	Oct. 24th—26th	Cyclone passed over the Island of Narkondam and the Cocos Islands. It levelled the forest on Narkondam to the ground.
4	1888	Sept. 13th—20th.	This storm crossed the Tenasserim Hills, north of Tavoy, on the 13th, and advanced across the Gulf of Martaban into the Bay of Bengal on the 14th. It thence crossed the Bay, increasing in intensity as it advanced, at an average rate of 14 miles per hour on a west-north-west track. It reached the Orissa coast on the early morning of the 16th and thence advanced by a very curved path and finally broke up on the 20th at the foot of the Punjab Himalayas.

In the case of the first and second storms the information is too brief to indicate the track of the storms. It is stated in the Bengal Meteorological Report for 1872 that the third storm which levelled the forest on the island of Narkondam formed near the Andamans, but the evidence is very slight and by no means conclusive. The fourth storm undoubtedly crossed or formed over the Tenasserim Hills as a moderately deep depression. It was of comparatively slight intensity in the Gulf of Martaban, but increased rapidly whilst crossing the Bay of Bengal, and hurricane winds were experienced in the storm

area when it was approaching the Orissa coast on the night of the 15th. No information has been obtained as to the existence of a storm in the Gulf of Siam or in Siam of which this storm of September 1888 in the Bay of Bengal might be the continuation.

Hence previous to the Port Blair cyclone the evidence of the probable passage of cyclonic storms from the Gulf of Siam across the Malayan Penir [illegible] in fact that in my Hand-book of [illegible] it is stated: "All cyclonic storm [illegible] re produced in the Bay itself."

After the experience of the storm of September 1888 and the cyclone of November 1891, it is necessary to modify this inference as follows:—

"Cyclonic storms in the Bay of Bengal almost invariably originate in the Bay, but under exceptional circumstances of rare occurrence they may enter it from the Gulf of Siam and the Malayan peninsula."

It is not possible to infer with certainty from the data of one storm the more important antecedent conditions determining the formation and track of the class of storms of which it is an example. The following gives known important abnormal meteorological conditions in the Indian area which were probably related to the formation of this storm in the Gulf of Siam. Probable conditions antecedent to and determining the formation of the cyclone in the Gulf of Siam.

1st.—Pressure had for some time previously been locally in excess in the peninsula, the excess being greatest in the Deccan, and had been in defect in the south-east of the Bay, the Andaman Sea and Tenasserim. The following variations or baric anomalies of the month of October for representative stations in each of these two areas illustrate these remarks:—

	Station.	October Barometric anomaly.
Area of increased pressure in the Deccan.	Raipur	+·025"
	Nagpur	+·025"
	Akola	+·028"
	Cuttack	+·031"
	Secunderabad	+·010"
	Bellary	+·011"
Area of decreased pressure in the Malay Peninsula, Burma and the Andaman Sea.	Port Blair	−·016"
	Diamond Island	−·018"
	Mergui	−·032"
	Moulmein	−·027"
	Rangoon	−·025"

The preceding data show clearly the chief features of the pressure anomalies. Pressure was locally in excess in the Deccan and in defect in the south-east of the Bay, the Andaman Sea and Tenasserim, the deficiency increasing in amount eastwards and being actually

greatest at Mergui. These figures hence suggest that pressure was at this time also persistently in defect in the neighbouring Gulf of Siam, and probably to an equal or greater amount than at Mergui. Hence also, as already pointed out, the trough of low pressure occupied a very abnormal position in the Bay in October. It was further south than usual and the eastern half was widened out both to the north and south and was deeper than usual. This feature was even more conspicuous in the last week of October than it had been heretofore, and the pressure anomaly charts of the 30th and 31st (Plates IV and V) illustrate its position and character at that period very clearly. The peculiar position of the broad belt of slightly deficient pressure in the Bay of Bengal, and probably the Gulf of Siam, accompanied large abnormal variations of the atmospheric circulation and rainfall of the period and was hence almost certainly a product of, and not the cause of, these variations. These are given in the following paragraphs.

2nd.—The south-west humid winds during the months of July, August and September in the south of the Bay had a much larger westerly or smaller easterly component than usual, thus showing that the monsoon current in the Bay was diverted to a greater extent than usual to the east of the Bay and Burma. The winds in the month of October in Burma and the Andaman Sea were even more remarkable than in the preceding three months. The following gives mean wind data of Port Blair, Mergui, and Diamond Island, and of three stations in the Malayan Peninsula, for which data are available :—

Station.	Mean wind direction.		Steadiness per cent.	
	Actual, October 1891.	Normal, October.	Actual, October 1891.	Normal, October.
Port Blair	S.69°E.	S. 5°W.	38	24
Mergui	N. 4°E.	S.79°W.	37	22
Diamond Island	N. 7°E.	S. 59°E.	26	21
Penang	S. 88°E.	N. 3°W.	24	35
Malacca	S.36°W.	S.76°W.	20	7
Singapur	S.20°W.	S.56°W.	50	26

The mean wind directions of Port Blair, Diamond Island, Mergui and Penang not only differ very largely from the normal but also indicate that the deflections from their normal directions were almost certainly due to the existence during the greater part or the whole of the month of an area of shallow depression or abnormal deficiency of pressure in the Andaman Sea and the area to the east of the Malayan Peninsula, *i.e.*, the Gulf of Siam. Hence the abnormal features of

the winds and of the pressure distribution of that area are in fair accordance.

This abnormal set of the retreating south-west monsoon current accompanied, as might almost be expected, a corresponding deflection of the north-easterly winds in the north and west of the Bay. They were even steadier than usual and were more northerly and less easterly at the northern stations, as is shown by the data of the accompanying table :—

Station.	Wind direction.		Steadiness percentage	
	Actual, October 1891.	Normal, October	Actual, October 1891	Normal, October
False Point	N.28°E	N.40°E	19	25
Vizagapatam	N.27°E.	S.65°E.	23	18
Madras	N 55°E.	N.35°E	58	10

3rd.—The distribution of the rainfall in October was very noteworthy. The rains failed almost entirely in North and Central Madras and the Deccan. They were heavy in the southern districts of Madras from the 6th to the 27th, when they became light and partial. The following gives data for representative stations in each of these areas :—

		Rainfall.					Total of month.	Normal of month.	Variation from normal
		October 1st to 7th.	October 8th to 14th.	October 15th to 21st.	October 22nd to 28th	October 29th to 31st			
Area of partial drought in October in North and Central Madras and Deccan.	Gopalpur . .	0·06	1·17	0·04	0·02	...	1·29	10·62	[illegible]
	Vizagapatam .	0·50	0·70	0·30		...	1·50	10·30	[illegible]
	Coconada . .	...	0·55	...	0·50	...	1·05	10·06	−9·01
	Nellore . .	...	0·45	1·15	1·40	...	3·00	11·41	−8·41
	Bellary . .	0·17	0·30	0·43	0·10	...	1·00	4·77	−3·77
	Cuddapah . .	1·70		...	0·85	...	2·55	6·81	−4·26
	Kurnool . .	1·25	0·47	...	0·34	...	2·06	3·60	−1·54
	Secunderabad .	0·15	0·68	...	...	...	0·83	2·70	−1·87
Area of increased rainfall.	Madras . .	0·17	1·75	7·59	3·91	...	13·42	12·62	+0·80
	Cuddalore . .	0·12	1·33	2·03	10·78	2·82	17·08	9·51	+8·07
	Negapatam . .	0·30	1·60	8·10	4·50	0·50	14·70	10·17	+4·53
	Tanjore . .	2·63	1·35	2·80	4·00	2·75	13·25	8·48	+5·47
	Trichinopoly .	0·78	2·15	3·09	3·83	...	10·11	6·93	+3·18
	Madura . .	1·80	3·50	3·30	4·90	1·40	15·10	7·94	+7·16

The rainfall of October was considerably below the normal of the month in Lower Burma and also in the Andamans and Nicobars as represented by Port Blair and Camorta. It was, on the other hand, in moderate excess at Mergui and Penang. No information is available of the rainfall in Siam or the Gulf of Siam, but the occurrence of heavier rain than usual at Penang and Mergui indicates the existence of a strong humid current in the immediate neighbourhood of the Gulf of Siam, which might give rise, under suitable conditions, to the occurrence of the concentrated rainfall that is invariably associated with the rapid development of cyclonic storms in the Indian monsoon area.

The following table gives rainfall data in illustration of the preceding remarks :—

	Rainfall.							
	October 1st to 7th.	October 8th to 14th.	October 15th to 21st.	October 22nd to 28th.	October 29th to 31st.	Total of month.	Normal of month.	Variation from normal.
Port Blair	0·04	0·38	4·40	0·67	0·16	5·65	12·17	—6·52
Camorta	2·42	0·78	1·53	3·18	0·13	8·04	14·23	—6·19
Mergui	0·60	3·15	10·02	1·63	0·25	15·65	13·54	+2·11
Tavoy	0·89	2·25	1·97	...	0·07	5·18	10·51	—5·33
Moulmein	0·42	2·54	0·81	0·04	0·41	4·22	8·28	—4·06
Diamond Island	0·13	1·34	0·76	0·99	...	3·22	8·92	—5·70
Penang	3·82	3·84	3·28	3·87	6·55	21·36	19·32	+2·04
Malacca	0·25	0·60	0·80	0·45	0·72	2·82	7·71	—4·89
Singapur	3·85	1·12	0·30	1·14	0·28	6·69	6·44	+0·25

Hence a reference to the preceding remarks and to the data of Chapter II establish the following. Throughout the whole monsoon period, from June to September, there had been an abnormally strong determination of the monsoon current in the south of the Bay to Tenasserim and Lower Burma. It was shewn as strongly by the deviation of the mean winds of the period from their normal direction as by the increased rainfall (vide page 8). The rains ceased in Northern and Central India on the 6th and 7th of October and were followed by an even more rapid rise of pressure than usual, which was most marked in the Central Provinces, Central India and the North-Western Provinces, the areas of most excessive rainfall in September. The first and chief effect of the rapid and unequally distributed rise of pressure which followed the close of the rains in Northern and Central India was to divert the greater portion of the monsoon current to

the southern districts of Madras A partial break in the rains also set in over Burma later in the month A portion of the humid monsoon current continued to pass eastwards across the South Andaman Sea to the Malayan Peninsula, and perhaps to the Gulf of Siam, and some portions of Tenasserim and the Malayan Peninsula hence received heavier rainfall than usual in October The conditions from the 7th to the 25th were very persistent in the Deccan and Madras Rainfall gradually diminished in extent and amount after the 26th, and pressure increased locally relatively to neighbouring districts Hence the Deccan high pressure area extended southwards during the last five days of the month This change brought into greater prominence the area of deficient pressure in the Gulf of Siam and the Andamans in one portion of the trough of low pressure and the area of deficient pressure off the Malabar coast in the Arabian Sea portion The south west monsoon current, which was still comparatively vigorous undoubt-

It is hence very probable that the same current about the same time gave excessive and concentrated rainfall to the first and quasi permanent depression at this time in the Gulf of Siam, and that the indraft caused by this torrential rainfall determined the formation

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Period

The previous remarks hence establish that it is very probable that the circumstances of the origin of this storm were as follows The storm originated in a sea area which had been characterised by a moderate deficiency of pressure for some time previously, due to peculiarities in the set of the Bay monsoon current and the consequent distribution of rainfall Temperature conditions were probably normal in the area and the chief feature was uniform temperature with very slight diurnal range Winds were probably very light, but a humid current continued to blow towards it across the south of the Bay A rise of pressure in Southern India checked the advance of the current to that area, and thus determined it more largely, if not chiefly, to this area It thus became an area of local concentrated rainfall and of squally weather which developed into a cyclonic storm

The storm was apparently generated rapidly, and, if so, its velocity increased very quickly up to a maximum of about 20 miles per hour In both these respects there are parallel storms of the Bay of Bengal It is sufficient to quote one example, the account of which has been drawn up by an independent authority The False Point cyclone of September 1885 was formed in a small area of torrential rain to the south west of Diamond Island on the 22nd of September and advanced with rapidly increasing velocity across the north of the Bay It passed centrally over False Point, at which time it was advancing at an average rate of 15 miles per hour It may also be noted that the

[illegible]

Rapidity of its growth.

False Point cyclone more closely resembled the present cyclone in all its important features than any other storm of recent occurrence. The available information hence suggests that the storm under discussion developed very quickly, probably on the 29th and 30th, and that it began to move with rapidly-increasing velocity on the 30th and 31st, and that on the evening of the 31st, when approaching the Lower Siam coast, it was advancing with a velocity of nearly 20 miles per hour. In these respects it agrees with similar storms in the Bay of Bengal—storms which have originated in a small area of concentrated and torrential rainfall; and it hence probably originated under similar conditions in the Gulf of Siam, and, as already pointed out, the known antecedents in the Indian area are in favour of these suppositions.

The cyclone was a storm of low elevation.

The course of the storm in the Gulf of Siam directed it to the lowest part of the Malayan Peninsula, *viz.*, the Isthmus of Krah. The districts covered by the storm in Lower Siam are comparatively low and only broken by isolated hills of altitude not exceeding 2,000 feet. They hence presented hardly any obstacle to the storm, which crossed the Peninsula levelling and destroying trees and houses within the inner storm area. It also passed over the comparatively low ground of the Little Andaman Island (highest point, Mount Harriet, 1,300 feet) apparently unchanged in character. These hills were hence probably of low elevation relative to the chief seat of activity in the cyclonic whirl. On the other hand, the cyclone resembled, in the large barometric depression and intensity of the lower air circulation, the more intense storms of the October Transition Periods generated in the Bay area. It was rapidly broken up, when its course directed it across Bengal. It was hence almost certainly a cyclonic storm or cyclone of low elevation, the whole motion being restricted to less than the lower 10,000 or 15,000 feet of the atmosphere over the Bay, and probably considerably less.

Intensity of the storm.

The intensity of the storm may be estimated in two ways, *viz.*, by the maximum depression of the barometer in the inner storm area below the normal of the period, or by the steepest gradients.

The following give the lowest barometric readings observed in or near the calm central area on different dates:—

Intensity of the storm as gauged by the maximum barometric depression in the storm area from day to day.

	Date.	Position with regard to calm centre.	Corrected and reduced barometer to sea-level and constant gravity.	Variation from normal of day.
			"	"
Port Blair . .	2nd— 2 A.M.	9 miles from central area.	28·254	−1·55
	3 A.M.	5 miles from central area.	28·359	−1·43
Puri	5th— 6 A.M.	25 miles from central area.	29·068	−0·77

	Date	Position with regard to calm centre.	Corrected and reduced barometer to sea level and constant gravity	Variation from normal of day
			"	"
False Point Light-house .	5th— 3 45 P M	2 miles in front of calm centre	28·012	—1·83
False Point Port Office . .	5th 5 P M	Just outside the calm centre	28·190	—1·66
Shortt's Island . .	5th— 8 P M	25 miles north from calm centre	29·028	—0·86
Intermediate station .	6th— 2—0 A M	In calm centre	28·670	—1·22
Lena . . .	6th— 1 15 A M	In calm centre	28·000?	—1·89
Lincolnshire . .	6th— 2 A M	5 to 10 miles from calm centre.	28·860	—1·03
Japan . .	6th— 2 20 A.M	20 to 30 miles from calm centre.	29·150	—0·78

The Port Blair observations do not give the pressure at the time the central calm was passing over it. They, however, indicate that pressure was almost certainly as low as 28·00 inches and probably lower. Allowing for the time it took the storm to travel from the observatory to the barque *Safir*, it is probable that the calm centre passed over Port Blair between 2-20 and 2-35 A M (assuming that the time was correctly kept on board the barque *Safir*). Interpolation in the Port Blair observations based on the character of the pressure changes of the storm when passing over False Point shows that the barometer probably read about 27·75 inches in the calm centre, and hence the probable maximum depression of the barometer was 2·1 inches at that stage

No vessel was near enough to the centre on the 2nd, 3rd, and 4th to give data of the maximum depression on these days The calm area passed centrically over False Point Light-house The lowest observed pressure was 28·012 inches a little outside the calm area, and the depression of the barometer below the normal 1·83 inches The corrected reading at 2-30 A M of the 6th of the mercurial barometer on board the Intermediate Station Light-vessel when the calm central area was passing over was 28·67 inches. This is confirmed by the reading of an aneroid barometer at the same time which was 28·70 inches This instrument, it may be noted, is of an unusually good make and has been found by the experience of several years to agree closely with the mercurial barometer on board the vessel (which is a marine K. P. barometer supplied by the India Meteorological Office) The reading of an aneroid barometer on board the ship *Lena* at about the same hour near the calm centre was 28·35 inches, but this is

almost certainly wrong for reasons given in pages. 89 and 90. Hence assuming that the reading of the barometer of the F. L. V. *Canopu* was correct, pressure in the central calm had increased from 28·15 inches at 5 P.M. of the 5th to 28·67 inches at 2-30 A.M. of the 6th—an additional proof to those already given that the storm began to fill up during the night of the 5th.

A consideration of these facts, and of the observed pressure at distances of 10 to 30 miles from the calm central area, appears to establish the following inferences:—

(1) From the morning of the 2nd (and probably from the afternoon of the 31st October) up to midnight of the 5th or 2 A. M. of the 6th the minimum pressure in or just outside of the calm area was less than 28·1 inches, and was very probably slightly below 27·75 inches on the 1st and 2nd.

(2) The maximum depression in and near the calm central area hence undoubtedly ranged between 1·6 inches and 1·83 inches during this period, and was very probably slightly greater than 2·1 inches on the 1st and 2nd.

(3) It is hence on the whole probable that the maximum depression decreased slightly on the 4th or 5th, but the decrease, although it may have amounted to ·25 inch, was small compared with the total amount of the depression, and it is very doubtful whether it exceeded 15 per cent. of the amount of the maximum depression.

(4) It would hence appear that the maximum barometer depression, and therefore the pressure conditions of the calm central area, were remarkably uniform during the whole of this period from the 31st to the afternoon of the 5th, including an interval of nearly six days; thus indicating a remarkable persistence and steadiness of the conditions of the central calm area and inner storm area, or core of the storm. This appears for various reasons to be an important feature of the storm, if it be true.

Intensity of the storm as measured by the magnitude of the steepest gradients in the storm area.

The unit of gradient adopted by European meteorologists is ·01 inch per 15 geographical miles, equivalent to a fall of one millimetre in one geographical degree approximately. The mean pressure difference during the south-west monsoon period is barely ·3 inch over the Bay of Bengal between Lat. 7° N. and Lat. 22° N. This mean pressure difference over the Bay corresponds to a mean gradient of nearly half. The gradients of course vary in different parts of the Indian land and sea area during the south-west monsoon, but they probably rarely exceed 1 or 2, except in the neighbourhood of, or within any area affected by, a cyclonic storm of the rains. It may also be noted that gradients seldom exceed 5 to 10 in European cyclonic storms.

The following gives the steepest observed gradients in the Port Blair cyclone as determined by accurate observations taken at the two land observatories in its path —

Station	Interval			Difference of pressure	Gradients.
	Hour		Hour	Inch	
Port Blair	1	to	2	·900 fall	67½
False Point Light house . .	14	to	14 30	·372 „	112
	14 30	to	15	·302	91
	17	to	17·30	·306 rise	92
	17 30	to	18	·310 „	93
False Point Port Office . .	15	to	15 30	·200 fall	60
	15·30	to	15 45	·100 „	60
	15 45	to	16	·180 „	108
	17	to	17 30	·110 rise	33
	17 30	to	18	·270 „	81

If it be assumed that the lowest pressure at Port Blair was 27 75 inches and that it occurred between 2·20 to 2·35 A M, this would give a fall of pressure of half an inch in a distance of 7 to 12 miles The former would correspond to a gradient of nearly 110 agreeing closely with the observed gradients at False Point It should also be noted that these are mean gradients based on observations taken at half or quarter hourly intervals, and hence not the maximum gradients during any one of these intervals It is almost certain that the steepest gradients exceeded 120

The following conclusions respecting the steepest gradients in this cyclone are based on the previous data and the connected considerations —

(1) The steepest horizontal gradients in the storm were in the front or advancing quadrant and almost certainly exceeded 100 and probably slightly exceeded [illegible] existence of the storm [illegible] servations taken at quarte[illegible] that the steepest gradients may have been at least 25 per cent. greater, and may have exceeded 150

(2) The steepest horizontal gradients observed in the western or retreating quadrant ranged between 80 and 100, and were about 20 per cent smaller than the steepest gradients in the advancing quadrant

(3) The maximum gradients in the inner storm area were almost certainly remarkably steady from the evening of the 1st and probably from the evening of the 31st until midnight of the 6th, and probably did not, under similar conditions of measurement, vary more than 10 per cent. during this interval.

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False Point Port Office . .	15	to	15-30	·200 fall	60
	15-30	to	15 45	·100 „	60
	15 45	to	16	·180 „	108
	17	to	17 30	·110 rise	73
	17-30	to	18	·270 „	81

If it be assumed that the lowest pressure at Port Blair was 27 75 inches and that it occurred between 2-20 to 2-35 A M, this would give a fall of pressure of half an inch in a distance of 7 to 12 miles. The former would correspond to a gradient of nearly 110, agreeing closely with the observed gradients at False Point It should also be noted that these are mean gradients based on observations taken at half or quarter hourly intervals, and hence not the maximum gradients during any one of these intervals It is almost certain that the steepest gradients exceeded 120.

The following conclusions respecting the steepest gradients in this cyclone are based on the previous data and the connected considerations —

(1) The steepest horizontal gradients in the storm were in the front or advancing quadrant, and almost certainly exceeded 100, and probably slightly exceeded 110 during by far the greater part of the existence of the storm These are the mean gradients based on observations taken at quarter or half-hour intervals, and it is possible that the steepest gradients may have been at least 25 per cent. greater, and may have exceeded 150.

(2) The steepest horizontal gradients observed in the western or retreating quadrant ranged between 80 and 100, and were about 20 per cent smaller than the steepest gradients in the advancing quadrant.

(3) The maximum gradients in the inner storm area were almost certainly remarkably steady from the evening of the 1st and probably from the evening of the 31st until midnight of the 6th, and probably did not, under similar conditions of measurement, vary more than 10 per cent. during this interval.

(4) Hence the maximum gradients near the calm central area in this storm as well as the maximum barometric depression were remarkably steady and uniform during a period of at least six days.

The preceding data hence establish that the mean pressure in or just in front of the central calm area from midnight of the 31st to midnight of the 5th averaged 28·00 inches, the maximum depression averaged 1·9 inches, the maximum gradients in the advancing quadrant averaged 110, and in the retreating quadrant averaged 90. The variation in these elements during the whole period was almost certainly less than 20 per cent., and probably not more than 10 to 15 per cent.

Data of the filling up of the central depression.

In connection with this it is interesting to note the rate at which the intensity of the storm, as measured by the maximum barometric depression, diminished whilst it was filling up.

The following table gives the chief data :—

Station.	Date and hour.	Pressure reduced to sea level and constant gravity.	Variation of pressure from the normal pressure of place and date.
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Port Blair (in calm centre)	2nd— 1-25 A.M.	27·75 (?)	—2·054 ?
False Point (centre)	5th— 3-45 P.M.	28·012	—1·830
F. L. V. *Canopus* (centre)	6th— 2-30 A.M.	28·670	—1·170
Saugor Island (near centre)	8 A.M.	29·670	—0·279
Calcutta	8 A.M.	29·722	—0·211
Dacca	4 P.M.	·689	—0·122
Silchar	7th— 8 A.M.	·844	—0·085
Silchar	4 P.M.	·821	+0·016

The data show in the first place that the depression was nearly as great at False Point as it was four or five days before, when the storm was crossing Port Blair and the Malayan Peninsula. They also establish that it began to fill up rapidly shortly after it advanced over False Point, and that it filled up very rapidly between 2 A.M. and 8 A.M. of the 6th, during which interval the rate of increase of pressure per hour was ·14 inch, or nearly a seventh of an inch. The total rise during the period between 4 P.M. of the 5th and 8 A.M. of the 6th was 1·5 inches and the depression decreased from 1·83 inches to about ·35 inch during the same period. Hence it is very probable that the calm central area contracted rapidly in size during this period and filled up before 8 A.M. of the 6th. This appears to be fully confirmed by the short interval of calm experienced by the F. L. V. *Canopus*, *Foam*, and other ships, which were involved in the calm centre at the Sandheads between 1 and 3 A.M. of the 6th. Thus the calm in the case

of the *Canopus* is stated to have lasted 3 or 4 minutes, and in the case of the *Star* 10 or 15 minutes The length of time is not stated in the case of the S S *Lincolnshire*, but was apparently short It is of course possible that the calm area did not pass centrically over the *Canopus* or *Star*, but when it is remembered that these vessels, as they had broken away from their moorings were almost certain to drift with the storm, it appears to be most probable that the calm central area was much smaller at 2 A M of the 6th than it was at 4 P M of the 5th, and hence that it was contracting in area at that time There is no evidence forthcoming of the existence of a calm centre during the passage of the storm across South Bengal, and it is hence very probable if not almost certain, that it completely filled up and disappeared before 8 A M of the 6th

Magnitude of the storm

The calm central area when passing centrically over Port Blair and the barque *Safir* was nearly 5 miles in width in an easterly and westerly direction or in the then direction of advance of the storm It passed centrically over False Point Light house on the afternoon of the 5th, and its diameter in the direction of advance of the storm was slightly greater than 5 miles Considering the character and phenomena of the storm during the whole of its existence and the remarkable permanence of the chief features of the storm during the greater part of its existence, it is almost certain that there was a well defined calm central area from the afternoon of the 31st up to 3 or 4 A M of the 6th, and that it formed one of the more conspicuous and important features of the storm Its diameter in the direction of advance of the storm was practically the same in length on the 5th as on the 2nd, the only days for which there are data that enable it to be approximately measured It is hence very probable that during the whole of the period from midnight of the 31st to that of the 5th the calm central area was practically unchanged in magnitude

There are no data from which an estimate of the shape of the calm area of the storm at any stage can be directly inferred It is, however, most probable that it was, like the inner storm area, oval or elliptical shaped and that its greatest diameter was in the direction of the advance of the centre and approximately 5 miles in length

The inner storm area or area of fierce and destructive winds (force 10 to 12) has been ascertained at several stages throughout the storm. It was probably about 30 miles in its longest diameter and 60 miles in the shortest direction when crossing the Malayan Peninsula (*vide* page 38) When advancing over the South Andaman Island it was between 70 and 80 miles in length by 50 to 60 miles in breadth (*vide* page 55) The inner storm area appears to have taken between 8 and 9 hours in passing over False Point Light house The rate of advance of the storm at that time was nearly 10 miles an hour The diameter of the inner storm area (in the direction of advance) was hence at that time probably between 80 and 90 miles.

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Similarly during the last week of October the temperature conditions of Lower Burma and the Bay Islands presented no large or important variations from the normal. Weather had been showery and of the usual character from the 1st to the 23rd or 24th October. Fine dry weather with clear or lightly clouded skies set in, and practically no rain fell during the remainder of the month. In consequence of this change the day temperature rose above the normal and the night temperature fell below it, but the variations of the mean temperature of the day were small throughout the whole period.

The following gives data for seven stations :—

Station.	Change of maximum temperature during 24 hours ending at 8 A. M. of the				
	27th.	28th.	29th.	30th.	31st.
	°	°	°	°	°
Mergui	—0·7	+0·2	+0·5	—0·7	+0·1
Tavoy	—1·3	+0·3	—0·5	0	+1·5
Port Blair	—3·9	+3·6	+0·2	+0·4	+0·2
Moulmein	+1·7	—3·0?	0	+0·3	+1·7
Diamond Island	—0·9	+1·0	0	+0·7	+1·7
Akyab	—0·5	+1·3	—0·3	+0·3	+0·2

	Variation of mean temperature from the normal of the 24 hours ending at 8 A. M. of the				
	27th.	28th.	29th.	30th.	31st.
	°	°	°	°	°
Mergui	—1·6	—1·9	—1·4	—1·7	—1·1
Tavoy	+0·7	—0·8	—0·5	—0·4	+0·9
Port Blair	—2·2	+0·9	+0·9	+1·8	+2·0
Moulmein	+3·0	+0·4	+0·5	+0·9	+2·9
Bassein	—1·6	—0·4	—0·9	—0·9	+0·6
Diamond Island	—2·6	—1·6	—1·6	—1·0	+0·9
Akyab	—0·6	+0·2	0	—0·3	+0·1

The minimum thermometers at Diamond Island and Moulmein were not very satisfactory at this time, the former reading too low and the latter too high, and hence the variation of the mean temperature of the day for these two stations (based in part on the minimum observations) cannot be accepted as quite correct. The erroneous readings exaggerated the deficient temperature at Diamond Island and the increased temperature at Moulmein.

It will be noted that these temperature data give no indication of any large variation of the temperature conditions from the normal in

the Andaman Sea, Tenasserim or Lower Burma immediately antecedent to the formation of the storm in the Gulf of Siam. The changes of temperature from day to day were small, and the variations of the mean temperature from the normal were relatively small but generally negative, showing that on the whole temperature was slightly in defect.

Hence these temperature observations suggest that it was on the whole probable there were no marked variations of the temperature conditions from the normal in the Malay Peninsula or the Gulf of Siam, which would account for the origin of the storm according to the theory of Ferrel.

The temperature conditions accompanying the storm during its passage across the Bay of Bengal cannot be ascertained from the data extracted from the logs of ships The temperature observations at Port Blair, False Point, Saugor Island and Chittagong, all situated on the sea coast of the Bay and included within the storm area at different periods of its advance, indicate the larger temperature changes accompanying the progress of the storm.

Station.	Date.	Mean temperature of 24 hours preceding 8 a.m. of date.	Variation from normal.	Daily range.	Normal mean daily range.	Weather.
		°	°	°	°	
Port Blair	1st	83·8	+1·5	11·3	9·6	Cloudy.
	2nd	74·4	—8·1	8·8	10·4	Cyclonic rain.
	3rd	78·0	—4·0	4·5	9·7	Squally
	4th	78·5	—3·2	5·1	9·6	Ditto.
	5th	81·1	—1·1	11·2	9·3	Monsoonish.
	6th	80·7	—1·3	9·2	9·9	Cloudy.
	7th	80·7	—1·4	8·7	10·3	Ditto
Saugor Island	1st	76·8	—0·7	18·8	12·2	Fine clear
	2nd	77·6	+0·3	17·3	11·8	Dust haze
	3rd	77·6	+0·7	17·3	11·6	Fine with passing clouds
	4th	78·1	+1·6	16·3	12·1	Threatening.
	5th	77·6	+1·6	7·2	12·4	Ditto.
	6th	75·0	+0·2	8·7	12·6	Severe gale of wind.
	7th	75·6	+0·2	11·2	12·7	Cloudy.
False Point	1st	77·2	—1·3	18·4	11·6	Fine with passing clouds.
	2nd	77·3	—1·1	15·3	11·1	Fine clear
	3rd	79·0	+0·2	14·8	11·4	Fine with passing clouds.
	4th	79·7	+2·4	9·2	12·1	Dark, gloomy.
	5th	79·3	+2·5	2·2	12·8	Gale of wind.
	6th	72·7	—3·5	11·4	13·8	Heavy rain during previous 24 hours.
	7th	76·0	0	8·8	14·2	Dark, gloomy.
Chittagong	1st	76·9	—1·1	22·6	14·7	Fine, clear.
	2nd	79·2	+1·4	23·1	14·2	Ditto
	3rd	77·9	+0·5	21·6	13·9	Dull.
	4th	78·9	+1·7	14·6	13·9	Cloudy.
	5th	76·4	—0·7	17·3	14·1	Dull.
	6th	76·7	—0·2	10·0	14·3	Overcast
	7th	76·4	0	9·6	14·0	Gale blowing

area. The evidence is, however, strongly in favour of the supposition that the rainfall was heaviest in the advancing quadrant. Puri is a striking example. The centre was 10 miles to the east of Puri at 8 A.M. of the 5th. During the previous 24 hours 13·61 inches of rain had fallen, and during the next 24 hours only 1·80 inches were received. Equally strong evidence is furnished by the rainfall at False Point, where 11·06 inches fell during the storm. The following gives the time distribution of this rainfall as recorded at the Light-house:—

Day.	Hour.	Rainfall during the interval since the last previous measurement.	Rate of fall per hour during interval.
		Inches.	Inch.
4th	8 A. M.	0·20	...
	10 A. M.	0·52	0·26
	4 P. M.	0·41	0·07
5th	8 A. M.	2·91	0·18
	10 A. M.	0·94	0·47
	2 P. M.	1·60	0·40
	4 P. M.	1·90	0·95
	5 P. M.	0·26	0·26
	8 P. M.	1·42	0·47
	11 P. M.	0.50	0·17
6th	2 A. M.	0·15	0·05
	8 A. M.	0·25	0·04

Total rainfall during the storm 11·06 inches.

The rainfall at False Point was heaviest and most intense between 2 P.M. and 4 P.M., and hence in the advancing quadrant. This inference is, it may be noted, in harmony with the known facts respecting the rainfall experienced by the F. L. V. *Canopus* and *Foam*.

The storm was breaking up as it passed through Bengal, and hence the rainfall data of that province show the distribution of the precipitation when the storm was disintegrating and not when it was in full vigour. No rain fell in Bihar and the greater part of North Bengal.

Light showers fell in the Assam Valley. The following gives data of the rainfall in the remainder of Bengal and in Cachar :—

Meteorological Division	District.	Number of stations	Average actual rainfall of 24 hours preceding 8 A.M. of			Total rainfall during Storm
			5th	6th	7th	
			Inches	Inches.	Inches.	Inches
South West Bengal	Midnapur	7	0·04	1·10	Nil	1·14
	24 Parganas	7	0·01	0·53	0·17	0·71
	Howrah	3	0·12	0·21	0·02	0·35
	Hooghly	3	Nil	0·29	0·01	0·29
	Burdwan	5	0·07	0·36	0·04	0·47
	Birbhum	5	0·34	0·97	0·01	1·32
	Nadia	5	0·01	0·51	0·01	0·53
	Khulna	5	0·03	0·69	1·76	2·48
	Jessore	5	0·01	0·25	0·55	0·81
	Murshidabad	8	0·11	0·88	0·07	1·06
East Bengal	Chittagong	4	0·05	0·27	0·61	0·93
	Backergunge	6	Nil	0·43	0·81	1·24
	Noakhali	4	Nil	0·09	0·60	0·69
	Faridpur	3	0·10	0·10	1·64	1·84
	Dacca	5	0·03	0·10	1·78	1·91
	Tippera	8	0·01	0·36	2·73	3·10
	Mymensingh	8	0·15	1·09	0·33	1·57
North Bengal	Pabna	2	0·03	0·79	0·15	0·97
	Bogra	4	0·19	1·60	0·31	2·10
	Rajshahye	5	0·15	0·83	0·17	1·15
	Malda	4	0·06	0·28	Nil	0·34
Assam, Surma	Cachar	9	0·15	0·81	0·52	1·48
	Sylhet	11	0·03	0·40	1·31	1·74

The centre crossed the coast of the 24-Parganas about 8 A.M. of the 6th and advanced through the districts of Khulna, Backergunj and Tippera, and passed into Cachar on the morning of the 7th. Taking this into consideration, an examination of the preceding data shows that the rainfall was much heavier in the advancing than in the retreating quadrant, and that it was heaviest in front and probably a little to the north or left of the centre in the advancing current.

The rainfall data of the storm hence support the following inferences :—

(1) The rainfall accompanying the storm was excessive and torrential in character whilst it was in full vigour.

(2) The rainfall diminished rapidly on the 6th whilst the storm was filling up, and practically ceased before the residual depression had disappeared.

(3) The rainfall was heaviest in the advancing quadrant not only whilst the storm was fully developed, but also whilst it was filling up. The contrast between the rainfall before and after the advance of the centre was in the cases for which we have exact data (*e.g.*, Pooree and False Point) very noteworthy.

Strength of the winds in the inner storm area.

The winds were exceptionally violent in this cyclone. The anemometers and wind vanes were blown away at four observatories, *viz.*, Port Blair, False Point, Puri, and Shortt's Island. The centre passed over the first two. Puri was about 15 miles from the centre when it was nearest to it and Shortt's Island 25 miles.

The following gives the greatest wind velocity as recorded by the anemometers at the stations in and near the calm central area during its progress:—

Stations.	Air movement in miles per hour.
Port Blair	111'5 miles, 4 A.M. of the 2nd.
Gopalpur	42 miles at 11 P.M. of the 4th.
Puri	96 " " 9 " " "
Shortt's Island	64 " " 4 " " 5th.
Saugor "	77 " " 5 A.M. " 6th.

The velocity was determined in the case of Puri, Shortt's Island and Saugor Island by means of observations of the anemometer taken at intervals of three minutes, and hence represents very approximately the velocity at these hours.

It is hence very probable, if not almost certain, that in the strongest blasts the air velocity was certainly not less than 150 miles per hour and may have been as much as 200, corresponding according to the usual formula to a horizontal pressure of about 90 lbs. per square foot on an obstacle. Assuming the known maximum gradients in this storm and using Ferrel's formula giving the relation between the baric gradients and air velocity in cyclones, we should get a velocity of about 130 miles per hour.

The destruction of life and property seems to have been greatest when crossing the Malayan Peninsula. The storm was nearly as destructive when advancing over the South Andaman Island.

The destruction was comparatively small in the Orissa Coast districts, but this was in part at least due to the fact that it was never included in the quadrant of the strongest winds.

Mr. Carroll states in a recent letter a remarkable result of the fierce sea and heavy ground swell due to the storm. He says that after the storm coral reefs were left exposed in several parts of the harbour where formerly they were not visible, and further states in a second letter on the subject—

"Coral reefs have not simply been thrown up, but the configuration of the place has been changed. Where lighters of several tons weight could easily approach tne

shore before at high tide has now changed to shallows of many yards out. In Ross Island a jetty constructed a short time ago to land Commissariat firewood has had to be abandoned for that purpose."

Electric phenomena of storm

The electric phenomena were, so far as can be judged from the whole of the data, slight and of little importance until the storm approached the Orissa and Bengal coasts. At this stage the amount of electric action was one of the more striking features of the storm. Thus Captain Beahan writes—

"... the last 16 years I have never ... that we experienced ..."

Mr. Elson speaks of the white vivid flashes of lightning.

The remarks of Captain Beahan and Mr. Elson on this point are in accordance with the general experience of cyclones that approach the north-west angle of the Bay. Thunderstorms and vivid thunder and lightning most frequently occur in India during hot weather storms and at the commencement and end of the monsoon rains, and occasionally at the termination of the periods known as breaks in the rains. Their law of occurrence appears to indicate that the production of electricity is not due solely to condensation of aqueous vapour under ordinary circumstances or to friction of a humid mass of air with a land or water surface, but that the rapid admixture or interaction of two air currents of very different hygrometric conditions is an essential condition for the rapid production of electricity. In the case of the present cyclone, when it was crossing the Andaman Sea and the centre of the Bay, the hygrometric conditions of the currents of indraught did not differ to any large extent, and hence there was little or no severe lightning and thunder at that stage. On the other hand, when crossing the north-west angle of the Bay, the indraught in the north-western quadrant introduced dry land winds of indraught, and the combination of these with the humid currents of influx from the south, gave rise to or facilitated the production of electricity rapidly and on the large scale.

Subsidiary whirls in storm area

A noteworthy feature of this storm was the existence of small subsidiary whirls as part of the large general disturbance. There is some evidence of the existence for a short time of certainly two—and perhaps of three—subsidiary whirls in this storm. They were observed in the following cases:—

(1) By the S.S. *Arratoon Apcar* on the 3rd, 300 miles to the south-east of the storm centre.

(2) At Gopalpur on the 5th.

(3) In the Hooghly near Saugor Island on the 5th.

The first is the most remarkable. The following gives the observations recorded in the log of the S.S. *Arratoon Apcar* on the 3rd:—

Hour.	Distance and bearing of vessel from centre.	Barometer, corrected.	Wind.		Weather remarks.
			Direction.	Force.	
		Inches.			
4 A.M. .	385 miles N.N.E.	30·008	S.E.	5	Fresh breeze and fast rising sea, overcast and very hard squalls at times.
8 " .	355 miles N.E. by N.	29·958	E.	6	Strong breeze and squally with rain and strong head sea.
Noon .	340 miles N.E.	·918	N.E.	8	Fresh gale with hard squalls with heavy rain, thick sea.
4 P.M. .	345 miles N.E. by E.	30·068	N.E.	8	P.M. Fresh gales with heavy squalls and dangerous cross sea running. 1-30 P.M. Wind fell away to a calm for 3 minutes, after which the wind shifted about from north-east to west and finally settled back to north-east, and the gale resuming its force.
8 " .	355 miles E.N.E.	·168	N.E.	9	Hard gale with squalls of hurricane force accompanied with heavy rain, thunder and lightning.
Midnight .	374 miles E.N.E.	·068	E.	9	Hard gale continuing, the squalls coming as before in terrible force with rain, thunder and lightning.

Assuming the observations to be correct, and allowing for the ordinary or diurnal oscillation of the barometer, pressure fell ·15″ between 4 A.M. and noon and increased ·25″ between noon and 4 P.M. These changes cannot be explained by a movement of approach to or withdrawal from the centre in the storm area. It was clearly due to some additional disturbance. The character of this disturbance is shewn by the fact that the *Arratoon Apcar* had for a short time at noon calms and light winds and that the wind which was north-east before the calm shifted to west as she passed out of the calm. The wind at 4 P.M. returned to its previous abnormal direction with respect to the distant cyclone centre, *viz.*, north-east, although the vessel was then nearly 350 miles to the north-east. She had a hard gale during the remainder of the day with squalls of hurricane force.

The only satisfactory explanation of the preceding weather and wind changes is that the *Arratoon Apcar* passed through a small whirl with an inner area of light and variable winds or calms. It might have been due to a succession of two squalls with an interval of feeble winds, but the barometric data and the shift of wind direction from north-east to west appear to be opposed to this explanation.

The only evidence in the case of Gopalpur is the statement of the observer that the calm centre passed over that station. This was undoubtedly not the case, and hence it is on the whole most probable that the calm at that station was merely a period of light winds between two severe squalls. So far as I have been able to ascertain, these calms between prolonged gusts or squalls occur most frequently in the western quadrants of cyclonic storms in the Bay.

The last instance is that described by Mr. Elson in the following words:—

"A somewhat remarkable and sudden shift of wind took place at 7 P. M. The wind, which had been about north-east, all at once blew in a vicious south-east squall with heavy rain and lightning, and after about 15 or 20 minutes it suddenly fell calm for about two hours; it then freshened and blew in hard gusts from north-north-east, while vivid flashes of lightning lit up the heavy pall overhead. The barometer fell two-tenths during these hard puffs. These backings and veerings of the wind certainly pointed to eddies in the storm system which have not been made clearly evident by any laws of storms yet brought forward. Probably they indicate a sort of double or twin whirl."

In this case, as in that of the S. S. *Arratoon Apcar*, there were observed—

(1) a sudden shift of wind from south-east to north-north-east with an intervening period of calms;

(2) a fall of the barometer of about two tenths of an inch

Mr. Elson has observed the phenomena of cyclonic storms for many years, and it is hence certain from his description that this was more than a period of light winds between two severe squalls. If it was a subsidiary whirl it was stationary or moving exceedingly slowly, otherwise it is very unlikely the calm area or area of light variable winds in the case of a small whirl would require two hours to pass over a vessel at anchor.

Hence the simplest and most probable explanation of the phenomena described above, and which were observed by two independent competent observers, is that there were within the large disturbance small subsidiary whirls, and that one of these whirls passed over the S. S. *Arratoon Apcar* and another over the pilot vessel

Subsidiary whirls in large cyclonic storms have, so far as I can ascertain, been observed in a few cases. One of the most *noteworthy* occurred in the Samoan hurricane of March 1889. The following extract from a report on that hurricane by the Marine Meteorologist, Hydrographic Office, United States, Navy Department, describes it.

"It will be noted from the report of H. M. S. *Calliope* that that vessel, when she steamed out of Apia Harbour on the 16th into the northerly gale, experienced a gradual but steady rise of the barometer, as was naturally to be expected, but that on the forenoon of the 17th there was a decided fall (about ·30″), followed by a still more rapid rise (about ·50″). No such fall of the barometer is recorded in the reports from the vessels at Apia, nor do the shifts of wind help us much in accounting for it. The only hypothesis by which it can be even partially explained is that a secondary, or storm of small size but considerable severity, passed close to the *Calliope* and between her and the islands to the southward, affecting her barometer but not the others. There is, of course, nothing very improbable about this (although one would expect the shifts of wind to have been more marked), and the formation of this secondary moving along a track about south-east by east may be assumed to explain the recurve to the southward and south-westward on the 18th and 19th of the Samoan hurricane itself, and its movement towards the East Cape of New Zealand (if it did move that way)."

Recurvature of storm.

The Port Blair cyclone during the first three or four days of its existence travelled in the ordinary direction of storms passing across the centre of the Bay in the month of November, *viz.*, west-north-west. When it had advanced as far as the centre of the Bay, it began to recurve to north. As it approached the west coast of the Bay it recurved more or less steadily on the 3rd, 4th and 5th, and the total recurvature of the storm was larger than in any storm in the Bay on record. Its track was N. 69° W. when it entered the Andaman Sea, and N. 55° E. when it passed into Bengal. The total recurvature during its passage across the Andaman Sea and Bay of Bengal was hence 124°. This occurred, as already stated, on the 3rd, 4th and 5th.

As invariably happens when a storm recurves in the Bay, the rate of advance decreased very considerably and varied to some extent with the amount of recurvature. The velocity of the storm centre, which averaged approximately 20 miles on the 31st, 1st and 2nd, decreased to 9 miles per hour on the 3rd and 4th, and increased slightly on the 5th and 6th to an average of 12 miles for the 24 hours preceding 8 A.M. of the 7th.

That recurvature should cause a decrease in the rate of advance of the storm is in accordance with ordinary mechanical principles. The general tendency of cyclonic storms in the Bay of Bengal is to advance in approximately straight tracks over the sea area. If they recurve, it is due to some obstruction or obstructive action, the conditions being such as to enable the storm to change its path without its rotatory motion being broken up. The higher portions of the East Ghâts in Ganjam and Vizagapatam frequently act as a barrier to storms advancing from the Bay. They form in these districts a mountain mass of considerable width, the higher elevations of which attain to heights of 5,000 and 6,000 feet. When a storm is advancing obliquely towards them, they cut off to some extent the indraught in the western quadrant. The indraught of the humid current in the eastern quadrant is practically maintained intact. In such cases (*i. e.*, when storms are advancing more or less obliquely to this part of the East Ghâts) they are usually deflected to the north and the centres recurve to an extent depending upon conditions of the storm itself or upon special or abnormal meteorological conditions obtaining at the time.

The following table gives data showing the amount of recurvature from the 2nd to the 6th and the velocity:—

Date.	Hour.	Direction.	Change in previous 24 hours.	Velocity.	Change in previous 24 hours.
				Miles.	Miles.
2nd . .	8 A.M.	N. 70° W.	—	450	—
3rd . .	"	N. 62° W.	8°	280	−170
4th . .	"	N. 42° W.	20°	220	−60
5th . .	"	N. 7° E.	49°	250	+30
6th . .	"	N. 43° E.	36°	230	−20

The storm, as has been pointed out, was nearly as intense when passing over False Point at 4 P.M. of the 5th as when passing over Port Blair. It began to fill up during the night of the 5th. Pressure in the central area increased about six-tenths of an inch between 4 P.M. of the 5th and 2 A.M. of the 6th, at which hour it was crossing the Sandheads and was still a well-defined cyclone with a central calm and an inner storm area of hurricane winds. It filled up very rapidly Features of the storm.

children waging war with one another for the possession of the crown which he himself still wore, and at length became the prisoner of the ablest and most successful of the combatants. Aurungzeb ever feared the influence of his own example his temper was cold his policy towards Mahometans was one of suspicion while his bigotry and persecutions rendered him hateful to his Hindoo subjects In his old age his wearied spirit could find no solace no tribe of brave and confiding men gathered round him yet his vigorous intellect kept *him* an emperor to the last and the hollowness of his sway was not apparent to the careless observer until he was laid in his grave The empire of the Moghuls wanted political fusion and its fair degree of administrative order and subordination was vitiated by the doubt which hung about the succession * It comprised a number of petty states which rendered an unwilling obedience to the sovereign power it was also studded over with feudal retainers and all these hereditary princes and mercenary "Jagheerdars" were ever ready to resist or to pervert the measures of the central government They considered then as they do now that a monarch exercised sway for his own interests only without reference to the general welfare of the country no public opinion of an intelligent people

* Notwithstanding this defect the English themselves have yet to do much before they can establish a system which shall last so long and work so well as Akber's organization of Pergunnah Chowdhrees and Qanoongoes, who may be likened to hereditary county sheriffs, and registers of landed property and holdings The objectionable hereditary law was modified in practice by the adoption of the most able or the most upright as the representative of the family

systematically governed controlled them, and applause always awaited the successful aspirant to power Akber did something to remove this antagonism between the rulers and the ruled but his successors were less wise than himself, and religious discontent was soon added to the love of political independence The southern portions of India, too, were at this time recent conquests, and Aurungzeb had been long absent, hopelessly endeavoring to consolidate his sway in that distant quarter The Himalayas had scarcely been penetrated by the Moghuls, except in the direction of Cashmeer, and rebellion might rear its head almost unheeded amid their wild recesses Lastly, during this period, Sevajee had roused the slumbering spirit of the Mahratta tribes He had converted rude herdsmen into successful soldiers, and had become a territorial chief in the very neighbourhood of the emperor Govind added religious fervor to warlike temper, and his design of founding a kingdom of Juts upon the waning glories of Aurungzeb's dominion, does not appear to have been idly conceived or rashly undertaken

Yet it is not easy to place the actions of Govind in due order, or to understand the particular object of each of his proceedings He is stated by a credible Mahometan author to have organized his followers into troops and bands, and to have placed them under the command of trustworthy disciples * He appears to have entertained a body of Puthans, who are everywhere the soldiers of fortune, † and it is certain that he

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* Seir ool Mutakhereen, i 113

† The Mahratta histories show that Sevajee likewise hired bands

established two or three forts along the skirts of the hills between the Sutlej and Jumna He had a post at Pownta in the Keerada vale near Nahun a place long afterwards the scene of a severe struggle between the Goorkhas and the English He had likewise a retreat at Anundpoor Makhowal which had been established by his father * and a third at Chumkowr fairly in the plains and lower down the Sutlej then the chosen hunt of Tegh Buhadur He had thus got strongholds which secured him against any attempts of his hill neighbours and he would next seem to have endeavored to mix himself up with the affairs of these half independent chiefs and to obtain a commanding influence over them so as by degrees to establish a virtual principality amid mountain fastnesses to serve as the basis of his operations against the Moghul government. As a religious teacher he drew contributions and procured followers from all parts of India but as a leader he perceived the necessity of military pivot, and as a rebel he was not insensible to the value of a secure retreat.

Govind has himself described the several actions in which he was engaged either as a principal or as an ally † His pictures are animated they are of some

of Puthans, who had lost service in the declining kingdom of Bejapoor (Grant Duff *Hist. of the Mahrattas* i. 105)

* Anundpoor is situated close to Makhowal The first name was given by Govind to his own particular residence at Makhowal, as distinguished from the abode of his father and it signified the place of happiness A knoll, with a seat upon it is here pointed out, whence it is said Govind was wont to discharge an arrow a coss and a quarter—about a mile and two-thirds English, the Punjabee coss being small.

† Namely, in the Vichitr Natuk, already quoted as a portion

value as historical records, and their sequence seems more probable than that of any other narrative. His first contest was with his old friend the chief of Nahun, aided by the Raja of Hindoor, to whom he had given offence, and by the mercenary Puthans in his own service, who claimed arrears of pay, and who may have hoped to satisfy all demands by the destruction of Govind and the plunder of his establishments. But the Gooroo was victorious, some of the Puthan leaders fell, and Govind slew the young warrior, Hurree Chund of Nalagurh, with his own hand. Tha Gooroo nevertheless deemed it prudent to move to the Sutlej, he strengthened Anundpoor, and became the ally of Bheem Chund of Kuhloor, who was in resistance to the imperial authorities of Kot Kanggra. The Mahometan commander was joined by various hill chiefs, but in the end he was routed, and Bheem Chund's rebellion seemed justified by success A period of rest ensued, during which, says Govind, he punished such of his followers as were lukewarm or disorderly But the aid which he rendered to the chief of Kuhloor was not forgotten, and a body of Mahometan troops made an unsuccessful attack upon his position Again an imperial commander took the field, partly to coerce Govind, and partly to reduce the hill rajas, who, profiting by the example of Bheem Chund, had refused to pay their usual

of the Second Grunt'h The "Guroo Bilas," by Sookha Singh, corroborates Govind's account, and adds many details Malcolm (*Sketch*, p 58 &c), may be referred to for translations of some portions of the Vichitr Natuk bearing on the period, but Malcolm's own general narrative of the events is obviously contradictory and inaccurate.

tribute. A desultory warfare ensued some attempts at accommodation were made by the hill chiefs but these were broken off and the expedition ended in the route of the Mahometans.

The success of Govind for all was attributed to him caused the Mahometans some anxiety and his designs appear likewise to have alarmed the hill chiefs for they loudly claimed the imperial aid against one who announced himself as the True King Aurungzeb directed the governors of Lahore and Sirhind to march against the Gooroo and it was rumored that the emperor's son Buhadur Shah would himself take the field in their support.* Govind was surrounded at Anundpoor by the forces of the empire. His own resolution was equal to any emergency but numbers of his followers deserted him He cursed them in this world and in the world to come and others who wavered he caused to renounce their faith and then dismissed them with ignominy But his difficulties increased desertions continued to take place, and at last he found himself at the head of no more than forty devoted followers. His mother his wives and his two

* Malcolm (*Sketch* p. 60, note) says, that thi allusion would place the warfare in 1701 A D., as Buhadur Shah was at that time sent from the Deccan toward Caubul. Some Sikh traditions, indeed represent Govind as having gained the good will of or as they put it, *as having shown favour to*, Buhadur Shah and Govind himself in the Vichitr Natuk says that a son of the emperor came to suppress the disturbances, but no name is given. Neither does Mr Elphinstone (*History* ii. 545) specify Buhadur Shah and indeed he merely seems to conjecture that a prince of the blood, who was sent to put down disturbances near Mooltan, was really employed against the Sikhs near Sirhind.

youngest children effected their escape to Sirhind, but the boys were there betrayed to the Mahometans, and put to death* The faithful forty said they were ready to die with their priest and king, and they prayed him to recall his curse upon their weaker hearted brethren, and to restore to them the hope of salvation. Govind said that his wrath would not endure But he still clung to temporal success, the fort of Chumkowr remained in his possession, and he fled during the night and reached the place in safety.

At Chumkowr Govind was again besieged* He was called upon to surrender his person and to renounce his faith, but Ajeet Singh, his son, indignantly silenced the bearer of the message The troops pressed upon the Sikhs, the Gooroo was himself every where present, but his two surviving sons fell before his eyes, and his little band was nearly destroyed He at last resolved upon escape, and taking advantage of a dark night, he threaded his way to the outskirts of the camp but there he was recognized and stopped by two Puthans These men, it is said, had in former times received kindness at the hands of the Gooroo, and they now assisted him ing reaching the town of Behlolpoor, where he trusted

* The most detailed account of this murder of Govind's children, is given in *Browne's India Tracts*, ii 6, 7

* At Chamkowr, in one of the towers of the small brick fort, is still shown the tomb of a distinguished warrior, a Sikh of the Sweeper caste, named Jeewun Singh, who fell during the siege The bastion itself is known as that of the Martyr A temple now stands where Ajeet Singh and Joojarh Singh, the eldest sons of Govind, are reputed to have fallen

Govind's defeat and flight are placed by the Sikhs in 1705, 1706 A D.

his person to a third follower of Islam, one Peer Mahomed with whom it is further said the Gooroo had once studied the Koran. Here he ate food from Mahometans and declared that such might be done by Sikhs under pressing circumstances. He further disguised himself in the blue dress of a Mussulman Dervish and speedily reached the wastes of Bhutinda. His disciples again rallied round him and he succeeded in repulsing his pursuers at a place since called "Mookutsur" or the Pool of Salvation. He continued his flight to Dumdumma, or the Breathing Place, half way between Hansee and Feerozpoor, the imperial authorities thought his strength sufficiently broken and they did not follow him further into a parched and barren country

At Dumdumma Govind remained for some time, and he occupied himself in composing the supplemental Grunth, the Book of the Tenth King to rouse the energies and sustain the hopes of the faithful This comprises the Vichitr Natuk, or "Wondrous Tale," the only historical portion of either Grunth and which he concludes by a hymn in praise of God, who had ever assisted him. He would he says make known in another book the things which he had himself accomplished the glories of the Lord which he had witnessed and his recollections or visions of his antecedent existence. All he had done, he said had been done with the aid of the Almighty and to "Loh or the mysterious virtue of iron he attributed his preservation. While thus living in retirement, messengers arrived to summon him to the emperor's presence but Govind replied to Aurungzeb in a series of parables admonitory

of kings, partly in which, and partly in a letter which accompanied them, he remonstrates rather than humbles himself. He denounces the wrath of God upon the monarch, rather than deprecates the imperial anger against himself, he tells the emperor that he puts no trust in him, and that the "Khalsa" will yet avenge him He refers to Nanuk's religious form, and he briefly alludes to the death of Arjoon and of Tegh Buhadur He describes his own wrongs and his childless condition. He was as one without earthly link, patiently awaiting death, and fearing none but the sole Emperor, the King of Kings Nor, said he, are the prayers of the poor ineffectual, and on the day of reckoning it would be seen how the emperor would justify his manifold cruelties and oppressions The Gooroo was again desired to repair to Aurungzeb's presence, and he really appears to have proceeded to the south some time before the aged monarch was removed by death *

Aurungzeb died in the beginning of 1707, and his eldest son, Buhadur Shah, hastened from Caubul to secure the succession He vanquished and slew one brother near Agrah, and, marching to the south, he defeated a second, Kambukhsh, who died of his wounds. While engaged in this last campaign, Buhadur Shah summoned Govind to his camp The Gooroo went, he was treated with respect and he received a military

* In this narrative of Govind's warlike actions, reference has been mainly had to the Vichitr Natuk of the Gooroo Bilas of Sookha Singh, and to the ordinary modern compilations in Persian and Goormookhee, transcripts, imperfect apparently, of some of which latter have been put into English by Dr. Macgregor *History of the Sikhs*, pp 79–99)

command in the valley of the Godavery The emperor perhaps thought that the leader of insurrectionary Juts might be usefully employed in opposing rebellious Mahrattahs and Govind perhaps saw in the imperial service a ready way of disarming suspicion and of re-organising his followers. * At Dumdumma he had again denounced evil upon all who should thenceforward desert him † in the south he selected the daring Bunda as an instrument and the Sikhs speedily reappeared in overwhelming force upon the banks of the Sutlej But Govind's race was run and he was not himself fated to achieve aught more in person He had engaged the services of an Afghan, half adventurer half merchant and he had procured from him a considerable number of horses. The merchant, or servant pleaded his own necessities and urged the payment of large sums due to him

* The Sikh writers seem unanimous in giving to their great teacher a military command in the Deccan, while some recent Mahometan compilers assert that he died at Patna But the liberal conduct of Buhadur Shah is confirmed by the contemporary historian, Khafee Khan who states that he received rank in the Moghul army (see Elphinstone, *History of India* ii 566, note), and it is in a degree corroborated by the undoubted fact of the Gooroo's death, on the banks of the Godavery The traditions preserved at Nuderh, give Kartik, 1765 (Sumbut), or towards the end of 1708 A.D., as the date of Govind's arrival at that place.

† It would be curious to trace how far India was colonised in the intervals of great invasions by petty Afghan and Toorkman leaders who defrayed their first or occasional expenses by the sale of horses Tradition represents that both the destroyer of Manikyala in the Punjab, and the founder of Bhutneer in Hurreeana, were emigrants so circumstanced and Ameer Khan the recent Indian adventurer was similarly reduced to sell his steeds for food. (*Memoirs of Ameer Khan*, p. 16)

Impatient with delays he used an angry gesture, and his mutterings of violence provoked Govind to strike him dead. The body of the slain Puthan was removed and buried, and his family seemed reconciled to the fate of its head. But his sons nursed their revenge, and awaited an opportunity of fulfilling it. They succeeded in stealing upon the Gooroo's retirement, and stabbed him mortally when asleep or unguarded. Govind sprang up and the assassins were seized, but a sardonic smile played upon their features, and they justified their act of retribution. The Gooroo heard, he remembered the fate of their father, and he perhaps called to mind his own unavenged parent. He said to the youths that they had done well, and he directed that they should be released uninjured.* The expiring Gooroo was childless, and the assembled disciples asked in sorrow who should inspire them with truth and lead them to victory when he was no more. Govind bade them be of good cheer: the appointed Ten had indeed fulfilled their mission, but he was about to deliver the Khalsa to God, the never-dying. "He who wishes to behold the Gooroo, let him search the Grunt'h of Nanuk

* All the common accounts narrate the death of Govind as given in the text, but with slight differences of detail, while some add that the widow of the slain Puthan continually urged her sons to seek revenge. Many accounts, and especially those by Mahometans, likewise represent Govind to have become deranged in his mind, and a story told by some Sikh writers gives a degree of countenance to such a belief. They say that the heart of the Gooroo inclined towards the youths whose father he had slain; that he was wont to play simple games of skill with them, and that he took opportunities of inculcating upon them the merit of revenge, as if he was himself weary of life, and wished to fall by

The Gooroo will dwell with the Khalsa be fi m and be faithful wherever five Sikhs are gathered together there will I also be present."*

Govind was killed on 1708 at Nuderh on the banks of the Godavery † He was in his forty-eighth year and if it be thought by any that his obscure end belied

their hands. The Seir ool Mutakhereen (i. 114) simply says that Govind died of grief on account of the loss of his children. (Compare Malcolm, *Sketch*, p. 70. &c. and Elphinstone, *History* ii 564) The accounts now furnished by the priests of the temple at Nuderh, represent the *one* assassin of the Gooroo to have been the grandson of the Payenda Khan, slain by Hur Govind, and they do not give him any further cause of quarrel with Govind himself.

Such is the usual account given of the Gooroo s dying injunctions and the belief th t Govind consummated the n ission or dispensation of Nanuk, seems to have been agreeable to the feelings of the times, while it now forms a main article of faith. The mother and one wife of Govind, are represented to have survived him some years but each, when dying declared the Gooroo ship to rest in the general body of the Khalsa, and not in any one mortal and hence the Sikhs do not give such a designation even to the most revered of their holy men, their highest religious title being "Bhaee, literally " brother but corresponding in significance with the English term " elder

† Govind is stated to have been born in the month of "Poh 1718 Sumbut, which may be the end of 1661 or beginning of 1662 A. D and all accounts agree in placing his death about the middle of 1765 Sumbut, or towards the end of 1708 A. D

At Nuderh there is a large religious establishment, partly supported by the produce of landed estates, partly by voluntary contribution and partl by sums levied annually agreeably to the mode organised by Arjoon The pri cipal of the establ shment dispatches a person to show his requisition to the faithful, and all give according to their means Thus the comm n ho semen in the

the promise of his whole life, it should be remembered that—

"The hand of man
Is but a tardy servant of the brain,
And follows, with its leaden diligence,
The fiery steps of fancy,"*

that when Mahomet was a fugitive from Mecca, "the lance of an Arab might have changed the history of the world," † and that the Achilles of poetry, the reflection of truth, left Troy untaken The lord of the Myrmidons, destined to a short life and immortal glory, met an end almost as base as that which he dreaded when struggling with Simois and Scamander, and the heroic Richard, of eastern and western fame, whose whole soul was bent upon the deliverance of Jerusalem, veiled his face in shame and sorrow that God's holy city should be left in the possession of infidels he would not behold that which he could not redeem, and he descended from the Mount to retire to captivity and a premature grave ‡ Success is thus not always the

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employ of Bhopal give a rupee and a quarter each a year, besides offerings on occasions of pilgrimage

Runjeet Singh sent considerable sums to Nuderh, but the buildings commenced with the means which he provided have not been completed

Nuderh is also called Upchullanuggur, and in Southern and Central India it is termed pre-eminently "the Goordwara," that is, "the house of the Gooroo"

* Sir Marmaduke Maxwell, a dramatic poem, act iv scene 6

† Gibbon, *Decline and Fall of the Roman* [illegible], ix 285

‡ For this story of the lion-like king [illegible] (*Decline* [illegible] *Fall*, xi 143) See also Turner's comp[illegible] haracte[illegible] Achilles and Richard (*History of Engl*[illegible] nd Hal[illegible]

measure of greatness. The last apostle of the Sikhs did not live to see his own ends accomplished but he effectually roused the dormant energies of a vanquished people, and filled them with a lofty although fitful longing for social freedom and national ascendancy the proper adjuncts of that purity of worship which had been preached by Nanuk. Govind saw what was yet vital and he relumed it with Promethean fire. A living spirit possesses the whole Sikh people and the impress of Govind has not only elevated and altered the constitution of their minds but has operated materially and given amplitude to their physical frames. The features and external form of a whole people have been modified and a Sikh chief is not more distinguishable by his stately person and free and manly bearing than a minister of his faith is by a lofty thoughtfulness of look which marks the fervour of his soul and his persuasion of the near presence of the Divinity.* Notwithstanding these changes it has been

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assent to its superior justness relatively to his own parallel of the Cid and the English hero (*Middle Ages* iii. 482)

* This physical change has been noticed by Sir Alex. Burnes (*Travels* i. 285 and i. 39), by Elphinstone (*History of India*, ii 564), and it also slightly struck Malcolm (*Sketch* p 129) Similarly a change of aspect, as well as of dress, &c., may be observed in the descendants of such members of Hindoo families as became Mahometans one or two centuries ago, and whose personal appearance may yet be readily compared with that of their undoubted Brahminical cousins in many parts of Malwa and Upper India That Prichard (*Physical History of Mankind*, i. 183, and i. 191) notices no such change in the features, although he does in the characters of the Hottentots and Esquimaux who have been converted to Christianity may either show that the attention of our

usual to regard the Sikhs as essentially Hindoo, and they doubtless are so in language and every-day customs, for Govind did not fetter his disciples with political systems or codes of municipal laws, yet, in religious faith and worldly aspirations, they are wholly different from other Indians, and they are bound together by a community of inward sentiment and of outward object unknown elsewhere But the misapprehension need not surprise the public nor condemn our scholars *, when it is remembered that the learned of Greece and Rome misunderstood the spirit of those humble men who obtained a new life by baptism Tacitus and Suetonius regarded the early Christians as a mere Jewish sect, they failed to perceive the fundamental difference, and to appreciate the latent energy and real excellence, of that doctrine, which has added dignity and purity to modern civilization †

observers and inquirers has not been directed to the subject, or that the savages in question have embraced a new faith with little of living ardor and absorbing enthusiasm

* The author alludes chiefly to Professor H H Wilson, whose learning and industry is doing so much for Indian History (See *Asiatic Researches*, xvii 237, 238, and *Continuation of Mill's History*, vii 101, 102) Malcolm holds similar views in one place (*Sketch*, p 144, 148, 150), but somewhat contradicts himself in another (*Sketch*, p 43) With these opinions, however, may be compared the more correct views of Elphinstone (*History of India*, ii 562, 564), and Sir Alex Burnes (*Travels*, i 284, 28), and also Major Browne's observation (*India Tracts*, ii 4), that the Sikh doctrine bore the same relation to the Hindoo, as the Protestant does to the Romish

† See the *Annals of Tacitus*, *Murphy's Translation* (book xv sect 44 note 15) Tacitus calls Christianity a dangerous super-

Bunda, the chosen disciple of Govind was a native of the south of India, and an ascetic of the Byraghee order * and the extent of the deceased Gooroo's preparations and means will be best understood from the narrative of the career of his followers, when his own commanding spirit was no more The Sikhs gathered

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stition, and regards its professors as moved by "a sullen hatred of the whole human race"—the Judaic characteristic of the period. Suetonius talks of the *Jews* raising disturbances in the reign of Claudius, at the instigation of "one Chrestu thus evidently mistaking the whole of the facts, and further making a Latin name genuine indeed, but misapplied, of the Greek term for anointed.

Agai the obscure historian Vopiscus, preserves a letter, written by the Emperor Hadrian, in which, the Christians are confounded with the adorers of Serapis, and in which the *Bishops* are said to be especially devoted to the worship of that strange god, who was introduced into Egypt by the Ptolemies (Waddington, *History of the Church*, p. 37) and even Eusebius himself did not p op rly distinguish between Christians and the Essenic Therapeutæ (Strauss, *Life of Jesus* i. 291), although the latter formed essentially a more sect, or order affecting asceticism and m stery

It is proper to add that Mr Newman quotes the descriptions of Tacitus and others as referring really to Christians and not to Jews (*On the Development of Christian Doctrine* p 20, &c.) He may be right, but the grounds of his dissent from the views of preceding scholars are not given.

* Some accounts represent Bunda to have been a native of Northern India, and the writer followed by Major Browne (*India Tracts* ii. 9), says he was born in the Jalundhur Doab

"Bunda signifies *the slave*, and Saroop Chund the author of the Goor Rutnaolee, states that the Byraghee took the name or title when he met Govind in the south, and found that the powers of his tutelary god Vishnoo, were ineffectual in the presence of the Gooroo Thenceforward, he said, he would be the slave of Govind.

in numbers round Bunda when he reached the north-west, bearing with him the arrows of Govind as the pledge of victory. Bunda put to flight the Moghul authorities in the neighbourhood of Sirhind, and then attacked, defeated, and slew the governor of the province. Sirhind was plundered, and the Hindoo betrayer and Mussulman destroyer of Govind's children, were themselves put to death by the avenging Sikhs * Bunda next established a stronghold below the hills of Sirmoor,† he occupied the country between the Sutlej and Jumna, and he laid waste the district of Seharunpur ‡

Buhadur Shah, the emperor, had subdued his rebellious brother Kambukhsh, he had come to terms with the Mahrattas, and he was desirous of reducing the princes of Rajpootana to their old dependence, when he heard of the defeat of his troops and the sack of his city by the hitherto unknown Bunda § He hastened towards the Punjab, and he did not pause to enter his

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* For several particulars, true or fanciful, relating to the capture of Sirhind, see Browne, *India Tracts*, ii 9, 10 See also Elphinstone, *History of India*, ii 565, 566 Vuzeer Khan was clearly the name of the governor, and not Fouzdar Khan, as mentioned by Malcolm (*Sketch*, p 77, 78) Vuzeer Khan was indeed the "Fouzdar," or military commander in the province, and the word is as often used as a proper name as to denote an office

† This was at Mookhlispoor, near Sadowra, which lies N E from Ambala, and it appears to be the "Lohgurh," that is, the iron or strong fort, of the Seir ool Mutakhereen (i. 115)

‡ Forster, *Travels*, i 304

§ Compare Elphinstone, *History of India*, ii. 561, and Forster, *Travels*, i. 304. This was in 1709, 10 A. D.

capital after his southern successes but in the mean time his generals had defeated a body of Sikhs near Paneeput, and Bunda was surrounded in his new stronghold A zealous convert disguised like his leader allowed himself to be captured during a sally of the besieged and Bunda withdrew with all his followers.* After some successful skirmishes he established himself near Jummoo in the hills north of Lahore and laid the fairest part of the Punjab under contribution. Buhadur Shah had by this time advanced to Lahore in person and he died there in the month of February 1712 †

The death of the emperor brought on another contest for the throne. His eldest son Jehandar Shah, retained power for a year but in February 1713 he was defeated and put to death by his nephew Ferokhseer These commotions were favorable to the Sikhs they again became united and formidable, and they built for themselves a considerable fort, named Goordaspoor between the Beeas and Ravee.‡ The Viceroy of Lahore marched against Bunda, but he was defeated in a pitched battle, and the Sikhs sent forward a party towards Sirhind, the governor of which, Bayezeed Khan

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* Compare Elphinstone, *History* ii 566, and Forster *Travels* i. 30, The zeal of the devotee was applauded without being pardoned by the emperor

† Compare the *Sear ool Mutakhereen*, i. 109, 112.

‡ Goordaspoor is near Kullanowr where Akber was saluted as emperor and it appears to be the Lohgurh of the ordinary accounts followed by Forster Malcolm, and others. It now contains a monastery of Sarsoot Brahmins, who have adopted many of the Sikh modes and tenets

advanced to oppose them. A fanatic crept under his tent and mortally wounded him; the Mahometans dispersed, but the city does not seem to have fallen a second time a prey to the exulting Sikhs * The emperor now ordered Abdool Summud Khan, the governor of Cashmeer, a Tooranee noble and a skilful general, to assume the command in the Punjab, and he sent to his aid some chosen troops from the eastward. Abdool Summud Khan brought with him some thousands of his own warlike countrymen, and as soon as he was in possession of a train of artillery he left Lahore, and, falling upon the Sikh army, he defeated it, after a fierce resistance on the part of Bunda The success was followed up, and Bunda retreated from post to post, fighting valiantly and inflicting heavy losses on his victors; but he was at length compelled to shelter himself in the fort of Goordaspoor He was closely besieged; nothing could be conveyed to him from without, and after consuming all his provisions, and eating horses, asses, and even the forbidden ox, he was reduced to submit † Some of the Sikhs were put to death, and their heads were borne on pikes before

* Some accounts nevertheless represent Bunda to have again possessed himself of Sirhind

† Compare Malcolm, *Sketch*, p 79, 80, Forster, *Travels*, i 306, and note, and the *Seirool Mutakhereen*, i 116, 117 The ordinary accounts make the Sikh army amount to 35,000 men (Forster says 20,000), they also detain Abdool Summud a year at Lahore before he undertook anything, and they bring down all the hill chiefs to his aid, both of which circumstances are probable enough.

Bunda and others as they were marched to Delhi with all the signs of ignominy usual with bigots and common among barbarous or half civilized conquerors.* A hundred Sikhs were put to death daily contending among themselves for priority of martyrdom and on the eighth day Bunda himself was arraigned before his judges A Mahometan noble asked the ascetic from conviction how one of his knowledge and understanding could commit crimes which would dash him into hell but Bunda answered that he had been as a mere scourge in the hands of God for the chastisement of the wicked and that he was now receiving the need of his own crimes against the Almighty His son was placed upon his knees—a knife was put into his hands and he was required to take the life of his child He did so silent and unmoved his own flesh was then torn with red-hot pincers and amid these torments he expired his dark soul say the Mahometans winging its way to the regions of the damned †

The memory of Bunda is not held in much esteem

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* Seir ool Mutakhereen i. 118, 120, Elphinstone (*History* ii 5 4, 575) quoting the contemporary Khafee Khan says the prisoners amounted to 740. The Seir ool Mutakhereen relates how the old mother of Bayezeed Khan killed the assassin of her son by letting fall a stone on his head as he and the other prisoners were being led through the streets of Lahore

† Malcolm (*Sketch* p. 82) who quotes the Seir ool Mutakhereen. The defeat and death of Bunda are placed by the Seir ool Mutakhereen (i 109), by Orme (*History* ii. 22), and apparently by Elphinstone (*History* ii. 564), in the year 1716 A D. but Forster (*Travels*, i. 306, note) has the date 1714.

by the Sikhs, he appears to have been of a gloomy disposition, and he was obeyed as an energetic and daring leader, without being able to engage the personal sympathies of his followers He did not perhaps comprehend the general nature of Nanuk's and Govind's reforms, the spirit of sectarianism possessed him, and he endeavored to introduce changes into the modes and practices enjoined by these teachers, which should be more in accordance with his own ascetic and Hindoo notions. These unwise innovations and restrictions were resisted by the more zealous Sikhs, and they may have caused the memory of an able and enterprizing leader to be generally neglected *

After the death of Bunda an active persecution was kept up against the Sikhs, whose losses in battle had been great and depressing. All who could be seized had to suffer death, or to renounce their faith. A price, indeed, was put upon their heads, and so vigorously were the measures of prudence, or of vengeance, followed up, that many conformed to Hindooism, others abandoned the outward signs of their

* Compare Malcolm, *Sketch*, p 83, 84 But Bunda is sometimes styled Gooroo by Indians, as in the Seir ool Mutakhereen (i. 114), and there is still an order of half-conformist Sikhs which regards him as its founder Bunda, it is reported, wished to establish a sect of his own, saying that of Govind could not endure, and he is further declared to have wished to change the exclamation or salutation, "Wah Gooroo ke Futteh!" which had been used or ordained by Govind, into "Futteh Dhurrum!" and "Futteh Dursun!" (Victory to faith! Victory to the sect!) Compare Malcolm, *Sketch*, p 83, 84.

belief and the more sincere had to seek a refuge among the recesses of the hills, or in the woods to the south of the Sutlej The Sikhs were scarcely again heard of in history for the period of a generation †

Thus at the end of two centuries had the Sikh faith become established as a prevailing sentiment and guiding principle to work its way in the world. Nanuk disengaged his little society of worshippers from Hindoo idolatory and Mahometan superstition and placed them free on a broad basis of religious and moral purity Ummer Das preserved the infant community from declining into a sect of quietists or ascetics Arjoon gave his increasing followers a written rule of conduct and a civil organization Hur Govind added the use of arms and a military system and Govind Singh bestowed upon them a distinct political existence and inspired them with the desire of being socially free and nationally independent. No further legislation was required a firm persuasion had been elaborated and a vague feeling had acquired consistence as an active principle. The operation of this faith become a fact, is only now in progress and the fruit it may yet bear cannot be foreseen. Sikhism arose where fallen and corrupt Brahminical doctrines were most strongly acted on by the vital and spreading Mahometan belief It has now come into contact with the civilization and Christianity of

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† Compare Forster (*Travels* I 312, 313), and Browne (*India Tracts* ii. 13), and also Malcolm (*Sketch*, p. 85, 86.)

Europe, and the result can only be known to distant posterity.*

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* There are also elements of change within Sikhism itself, and dissent is everywhere a source of weakness and decay, although sometimes it denotes a temporary increase of strength and energy Sikh sects, at least of quietists, are already numerous, although the great development of the tenets of Gooroo Govind has thrown other denominations into the shade Thus the prominent division into "Khulasa" meaning of Nanuk, and "Khalsa," meaning of Govind, which is noticed by Forster (*Travels*, i 309), is no longer in force The former term, Khulasa, is almost indeed unknown in the present day, while all claim membership with the Khalsa Nevertheless, the peaceful Sikhs of the first teacher are still to be everywhere met with in the cities of India, although the warlike Singhs of the tenth king have become predominant in the Punjab, and have scattered themselves as soldiers from Caubul to the south of India.

Note—The reader is referred to Appendices I, II, III and IV for some account of the Grunt'hs of the Sikhs, for some illustrations of principles and practices taken from the writings of the Gooroos, and for abstracts of certain letters attributed to Nanuk and Govind, and which are descriptive of some views and modes of the Sikh people Appendix V may also be referred to for a list of some Sikh sects or denominations.

CHAPTER IV

THE ESTABLISHMENT OF SIKH INDEPENDENCE.

1716—1764.

Decline of the Moghul Empire.—Gradual reappearance of the Sikhs—The Sikhs coerced by Meer Munnoo and persecuted by Tymoor the son of Ahmed Shah.—The Army of the Khalsa" and the State of the "Khalsa proclaimed" to be substantive Powers—Adeena Beg Khan and the Mahrattas under Ragoba.—Ahmed Shah s incursions and victories—The provinces of Sirhind and Lahore possessed in sovereignty by the Sikhs—The political organization of the Sikhs as a feudal confederacy—The Order of Akalees

AURUNGZEB was the last of the race of Tymoor who possessed a genius for command and in governing a large empire of incoherent parts and conflicting principles his weak successors had to lean upon the doubtful loyalty of selfish and jealous ministers, and to prolong a nominal rule by opposing insurrectionary subjects to rebellious dependents. Within a generation Mahometan adventurers had established separate dominations in Bengal Lucknow and Hyderabad the Mahratta Peshwah had startled the Moslems of India by suddenly appearing in arms before the imperial

city,* and the stern usurping Nadir had scornfully hailed the long descended Mahomed Shah as a brother Toork in the heart of his blood-stained capital † The Afghan colonists of Rohilkhund and the Hindoo Jats of Bhurtpoor, had raised themselves to importance as substantive powers, ‡ and when the Persian conqueror departed with the spoils of Delhi, the government was weaker, and society was more disorganized, than when the fugitive Baber entered India in search of a throne worthy of his lineage and his personal merits

These commotions were favorable to the reappearance of a depressed sect, but the delegated rule of Abdool Summud in Lahore was vigorous, and, both under him and his weaker successor,§ the Sikhs comported themselves as peaceful subjects in their villages, or lurked in woods and valleys to obtain a precarious livelihood as robbers || The tenets of Nanuk and Govind had nevertheless taken root in the hearts of the people,

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* This was in 1737 A D, when Bajee Rao, the Peshwah, made an incursion from Agra towards Delhi (See Elphinstone, *History*, ii 609, and *Grant Duff's History of the Mahrattas*, i 533, 534)

† See Nadir Shah's letter to his son, relating his successful invasion of India (*Asiatic Researches*, x 545, 546)

‡ A valuable account of the Rohillas may be found in *Forster's Travels* (i 115 &c), and the public is indebted to the Oriental Translation Committe of London for the memoirs of Hafiz Rehmut Khan, one of the most eminent of their leaders.

The Jats of Bhurtpoor and Dholpoor, and of Hattras and other minor places, deserve a separate history

§ He was likewise the son of the conqueror of Bunda. His name was Zukareea Khan, and his title Khan Buhadur

|| Compare *Forster's Travels*, i 313, and *Browne's India Tracts*, ii. 13

the peasant and the mechanic nursed their faith in secret, and the more ardent clung to the hope of ample revenge and speedy victory The departed Gooroo had declared himself the last of the prophets the believers were without a temporal guide, and rude untutored men accustomed to defer to their teacher as divine, were left to work their way to greatness without an ordained method and without any other bond of union than the sincerity of their common faith. The progress of the new religion and the ascendancy of its votaries, had thus been trusted to the pregnancy of the truths announced and to the fitness of the Indian mind for their reception The general acknowledgment of the most simple and comprehensive principle is sometimes uncertain and is usually slow and irregular and this fact should be held in view in considering the history of the Sikhs from the death of Govind to the present time

During the invasion of Nadir Shah the Sikhs collected in small bands and plundered both the stragglers of the Persian army and the wealthy inhabitants who fled towards the hills on the first appearance of the conqueror or when the massacre at Delhi became generally known * The impunity which attended these efforts encouraged them to bolder attempts and they

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Browne India Tracts ii 13, 14 *Nadir acquired from the* Moghul emperor the provinces of Sindh and Caubul, and four districts of the province of Lahore, lying near the Jehlum river

Zukareea Khan, son of Abdool Summud was Viceroy of Lahore at the time

The defeat of the Delhi sovereign, and Nadir's entry into the capital took place on the 13th February and early in March, 1739

began to visit Amritsir openly instead of in secrecy and disguise. The Sikh horseman, says a Mahometan author, might be seen riding at full gallop to pay his devotions at that holy shrine Some might be slain, and some might be captured, but none were ever known to adjure their creed when thus taken on their way to that sacred place * Some Sikhs next succeeded in establishing a small fort at Dullehwal on the Ravee, and they were unknown or disregarded, until considerable numbers assembled and proceeded to levy contributions around Eminabad, which lies to the north of Lahore The marauders were attacked, but the detachment of troops was repulsed and its leader slain A larger force pursued and defeated them, many prisoners were brought to Lahore, and the scene of their execution is now known as "Shuheed Gunj," or the place of martyrs † It is further marked by the tomb of Bhaee Taroo Singh, who was required to cut his hair and to renounce his faith, but the old companion of Gooroo Govind would yield neither his conscience nor the symbol of his conviction, and his real or protended answer is preserved to the present

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respectively, but were not known in London until the 1st of October, so slow were communications, and of so little importance was Dehli to Englishmen, three generations ago (*Wade's Chronological British History*, p 417)

* The auther is quoted, but not named by Malcolm, *Sketch*, p 88

† Compare Browne, *India Tracts*, ii 13, Malcolm *Sketch*, p 86, and *Murray's Runjeet Singh* by Prinsep, p 4 Yehva Khan, the elder son of Zukareea Khan, was governor of the Punjab at the time.

day The hair the scalp and the skull said he, have a mutual connection the head of man is linked with life, and *he* was prepared to yield his breath with cheerfulness

The viceroyalty of Lahore was about this time con tested between the two sons of Zukareea Khan the successor of Abdool Summud who defeated Bunda. The younger, Shah Nuwaz Khan displaced the elder and to strengthen himself in his usurpation, he opened a correspondence with Ahmed Shah Abdalee, who be came master of Afghanistan on the assassination of Nadir Shah, in June 1747 The Dooranee King soon collected round his standard numbers of the hardy tribes of Central Asia, who delight in distant inroads and successful rapine. He necessarily looked to India as the most productive field of conquest or incursion and he could cloak his ambition under the double pre text of the tendered allegiance of the governor of Lahore, and of the favorable reception at Delhi of *his* enemy Nadir Shah s fugitive governor of Caubul.* Ahmed Shah crossed the Indus but the usurping viceroy of Lahore had been taunted with his treason generosity prevailed over policy and he resolved upon opposing the advance of the Afghans. He was de feated and the Abdalee became master of the Punjab. The Shah pursued his march to Sirhind where he was

Compare *Murray's Runjeet Singh*, by Prinsep, p 9. and Browne, *India Tracts* ii. Nassir Khan, the governor hesitated about marrying his daughter to Ahmed Shah one of another race, as well as about render ng obedience to him as sovereign. Compare, however Elphinstone (*Account of Caubul* II. 285), who makes no mention of these particulars

met by the Vuzeer of the declining empire Some desultory skirmishing, and one more decisive action took place, but the result of the whole was so unfavorable to the invader, that he precipitately recrossed the Punjab, and gave an opportunity to the watchful Sikhs of harassing his rear and of gaining confidence in their own prowess The minister of Delhi was killed by a canon ball during the short campaign, but the gallantry and the services of his son, Meer Munnoo, had been conspicuous, and he became the Viceroy of Lahore and Mooltan, under the title of Moyen-ool-Moolk *

The new governor was a man of vigor and ability, but his object was rather to advance his own interests than to serve the emperor, and in the administration of his provinces, he could trust to no feelings save those which he personally inspired He judiciously retained the services of two experienced men, Kowra Mull and Adeena Beg Khan. the one as his immediate deputy, and the other as the manager of the Jalundhur Dooab Both had dealt skilfully for the times with the insurrectionary Sikhs, who continued to press themselves more and more on the attention of their unloyal governors † During the invasion of Ahmed Shah they had thrown up a fort close to Amritsir, called the Ram Rownee, and one of their most able leaders had arisen,

* Compare Elphinstone, *Caubul*, ii 285, 286 and Murray's *Runjet Singh*, p 6—8

† Kowra Mull was himself a follower of Nanuk, without having adopted the tenets of Govind (Forster *Travels*, i 314) Adeena Beg Khan was appointed manager of the Jalundhur Dooab by Zukareea Khan, with orders to coerce the Sikhs after Nadir Shah's retirement (Browne, *India Tracts*, ii 14)

Jussa Singh Kullal a brewer or distiller who boldly proclaimed the birth of a new power in the state—the "Dul" of the "Khalsa," or army of the theocracy of Singhs."* As soon as Meer Munnoo had established his authority he marched against the insurgents, captured their fort, dispersed their troops, and took measures for the general preservation of good order † His plans were interrupted by the rumored approach of a second Afghan invasion he marched to the Chenab to repel the danger and he despatched agents to the Dooranee camp to avert it by promises and concessions. Ahmed Shah's own rule was scarcely consolidated, he respected the ability of the youth who had checked him at Sirhind and he retired across the Indus on the stipulation that the revenues of four fruitful districts should be paid to him as they had been paid to Nadir Shah from whom he pretended to derive his title. ‡

Meer Munnoo gained applause at Delhi for the

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* Compare Browne, *India Tracts* ii. 16 who gives Chersa Singh Toka Singh and Kirwur Singh, as the confederates of Jussa Kullal.

† Both Kowra Mull and Adeena Beg but especially the former and the one from predilection, and the other from policy are understood to have dissuaded Meer Munnoo from proceeding to extremities against the Sikhs Compare Browne, *Tracts* ii 16 and Forster *Travels*, i. 314, 315, 327 328., which latter however justly observes, that Munnoo had objects in view of greater moment to himself than the suppression of an infant sect.

‡ The Afghans state that Meer Munnoo also became the Shah's tributary for the whole of the Punjab, and, doubtless, he *promised* any thing to get the invader away and to be left alone (Compare Elphinstone, *Caubul*, ii. 286., and Murray *Runjeet Singh*, p. 9, 10.)

success of his measures, but his ambition was justly dreaded by the Vuzeer Sufder Jung, who knew his own designs on Oude, and felt that the example would not be lost on the son of his predecessor. It was proposed to reduce his power by conferring the province of Mooltan on Shah Nuwaz Khan, whom Meer Munnoo himself had supplanted in Lahore,* but Munnoo had an accurate knowledge of the imperial power and of his own resources, and he sent his deputy, Kowra Mull, to resist the new governor. Shah Nuwaz Khan was defeated and slain, and the elated Viceroy conferred the title of Muharaja on his successful follower.† This virtual independence of Delhi, and the suppression of Sikh disturbances, emboldened Munnoo to persevere in his probably original design, and to withhold the promised tribute from Ahmed Shah. A pretence of demanding it was made, and the payment of all arrears was offered, but neither party felt that the other could be trusted, and the Afghan king marched towards Lahore. Munnoo made a show of meeting him on the frontier, but, finally he took up an entrenched position under the walls of the city. Had he remained on the defensive, the Abdalee might probably have been foiled, but, after a four months' beleaguer, he was tempted to risk an action. Kowra Mull was killed, Adeena Beg scarcely

* Heiatoolla Khan, the younger son of Zukareea Khan, is stated in local Mooltan chronicles to have held that province when Nadir Shah entered Sindh, in 1739-40, to fairly settle and subdue it, and to have then tendered his allegiance to the Persian conqueror, from whom he received the title of Shah Nuwaz Khan

† Compare Murray's *Runjeet Singh*, p. 10.

exerted himself, Munnoo saw that a prolonged contest would be ruinous, and he prudently retired to the citadel and gave in his adhesion to the conqueror The Shah was satisfied with the surrender of a considerable treasure and with the annexation of Lahore and Mooltan to his dominions. He expressed his admiration of Munnoo's spirit as a leader, and efficiency as a manager and he continued him as his own delegate in the new acquisitions. The Shah took measures to bring Cashmeer also under his sway and then retired towards his native country *

This second capture of Lahore by strangers necessarily weakened the administration of the province and the Sikhs, ever ready to rise again became troublesome but Adeena Beg found it advisable at the time to do away with the suspicions which attached to his inaction at Lahore, and to the belief that he temporized with insurgent peasantry for purposes of his own He was required to bring the Sikhs to order, for they had virtually possessed themselves of the country lying between Amritsir and the hills. He fell suddenly upon them during a day of festival at Makhowal and gave them a total defeat. But his object was still to be thought their friend and he came to an understanding with them that their payment of their own rents should be nominal or limited and their exactions from others moderate or systematic. He took also many of them into his pay one of the number being Jussa Singh a

* Compare Elphinstone, *Caubul*, ii, 288, and Murray's *Runjeet Singh* p. 10. 13.

carpenter, who afterwards became a chief of consideration *.

Meer Munnoo died a few months after the re-establishment of his authority as the deputy of a new master † His widow succeeded in procuring the acknowledgment of his infant son as viceroy under her own guardianship, and she endeavoured to stand equally well with the court of Delhi and with the Dooranee king. She professed submission to both, and she betrothed her daughter to Ghazeeooddeen, the grandson of the first Nizam of the Deccan, who had supplanted the Viceroy of Oude, as the minister of the enfeebled empire of India.‡ But the Vuzeer wished to recover a province for his sovereign, as well as to obtain a bride for himself. He proceeded to Lahore and removed his enraged mother-in-law, and the Punjab remained for a time under the nominal rule of Adeena Beg Khan, until Ahmed Shah again marched and made it his own The Dooranee king passed through Lahore in the winter of 1755-56, leaving his son Tymoor under the tutelage of a chief, named Jehan Khan, as governor. The Shah likewise annexed Sirhind to his territories,

* Compare Browne, *India Tracts*, ii. 17, and Malcolm, *Sketch*, p 82

† Forster (*Travels*, i 315) and Malcolm (*Sketch*, p 92), say 1752 Browne (*Travels*, ii 18) gives the Hijree year, 1165, which corresponds with 1751, 1752 A D Murray (*Runjeet Singh*, p 13) simply says Munnoo did not long survive his submission, but Elphinstone (*Caubul*, ii 288) gives 1756 as the date of the Viceroy's death

‡ The original name of Ghazeeooddeen was Shahab-ood-deen, corrupted into Sahoodeen and Shaodeen by the Mahrattas.

and although he extended his pardon to Ghazeeooddeen personally, he did not return to Candahar until he had plundered Delhi and Muttra, and placed Nujeebood dowla, a Rohilla leader near the person of the Vuzeer's puppet king as the titular commander of the forces of the Delhi empire, and as the efficient representative of Abdalee interests.*

Prince Tymoor's first object was to thoroughly disperse the insurgent Sikhs, and to punish Adeena Beg for the support which he had given to the Delhi minister in recovering Lahore. Jussa, the carpenter had restored the Ram Rownee of Amritsir that place was accordingly attacked the fort was levelled the buildings were demolished and the sacred reservoir was filled with the ruins. Adeena Beg would not trust the prince, and retired to the hills, secretly aiding and encouraging the Sikhs in their desire for revenge. They assembled in great numbers, for the faith of Govind was the living conviction of hardy single-minded villagers, rather than the ceremonial belief of busy citizens, with thoughts diverted by the opposing interests and conventional usages of artificial society

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* Compare Forster, *Travels* i 316, 317 Brown, *Tracts*, ii 48 Malcolm, *Sketch*, p. 92 94; Elphinstone, *Caubul* ii. 284, 289; and Murray, *Runjeet Singh*, p. 14, 15.

During the nominal Viceroyalty of Meer Munnoo's widow one Beekaree Khan played a conspicuous part as her deputy He was finally put to death by the lady as one who designed to supplant her authority; but he was, nevertheless, supposed to have been her paramour (Compare Browne, ii, 18, and Murray p 14) The gilt mosque at Lahore was built by this Beekaree Khan.

The country around Lahore swarmed with horsemen, the prince and his guardian were wearied with their cumbrous efforts to scatter them, and they found it prudent to retire towards the Chenab. Lahore was temporarily occupied by the triumphant Sikhs, and the same Jussa Singh, who had proclaimed the "Khalsa" to be a state and to possess an army, now gave it another symbol of substantive power. He used the mint of the Moghuls to strike a rupee bearing the inscription, "Coined by the grace of the 'Khalsa' in the country of Ahmed, conquered by Jussa the Kullal"*

The Delhi minister had about this time called in the Mahrattas to enable him to expell Nujeebooddowla, who, by his own address and power, and as the agent of Ahmed Shah Abdalee, had become paramount in the imperial councils. Ghazeeooddeen easily induced Ragoba, the Peshwah's brother, to advance, Delhi was occupied by the Mahrattas, and Nujeebooddowla escaped with difficulty. Adeena Beg found the Sikhs less willing to defer to him than he had hoped, they were, moreover, not powerful enough to enable him to govern the Punjab unaided, and he accordingly invited the Mahrattas to extend their arms to the Indus He had also a body of Sikh followers, and he marched from the Jumna in company with Ragoba. Ahmed Shah's

* Compare Browne, *Tracts*, ii 19, Malcolm, *Sketch*, p 93 &c, Elphinstone, *Caubul*, ii 289, and Murray's *Runjeet Singh*, p 15

Elphinstone, using Afghan accounts, says Adeena Beg defeated a body of Tymoor's troops, and Murray, using apparently the accounts of Punjab Mahometans, omits the occupation of Lahore by the Sikhs.

governor of Sirhind was expelled but Adeena Beg's Sikh allies incensed the Mahrattas by anticipating them in the plunder of the town, which, after two generations of rapine they considered as peculiarly their right. The Sikhs evacuated Lahore, and the several Afghan garrisons retired and left the Mahrattas masters of Mooltan and of Attok as well as of the capital itself. Adeena Beg become the governor of the Punjab but his vision of complete independence was arrested by death and a few months after he had established his authority he was laid in his grave.* The Mahrattas seemed to see all India at their feet, and they concerted with Ghazeeooddeen a scheme pleasing to both the reduction of Oude and the expulsion of the Rohillas.† But the loss of the Punjab brought Ahmed Shah a second time to the banks of the Jumna and dissipated for ever the Mahratta dreams of supremacy ‡

The Dooranee king marched from Belotchistan up the Indus to Peshawur and thence across the Punjab. His presence caused Mooltan and Lahore to be evacuated by the Mahrattas, and his approach induced the Vuzeer Ghazeeooddeen to take the life of the emperor while the young prince, afterwards Shah Alum was absent endeavoring to gain strength by an alliance

* Compare Browne *India Tracts* ii. 19, 20 Forster *Travels*, i 317 318; Elphinstone, *Caubul*, ii. 290 and Grant Duff's *History of the Mahrattas* ii. 132. Adeena Beg appears to have died before the end of 1758.

† Compare Elphinstone, *History of India*, ii. 669, 670.

‡ Nujeebooddowla, and the Rohillas likewise urged Ahmed to return, when they saw their villages set on flames by the Mahrattas. Elphinstone, *India*, ii. 670., and Browne, *Tracts*, ii. 20.

with the English, the new masters of Bengal. The Mahratta commanders, Sindhia and Holkar, were separately overpowered, the Afghan king occupied Delhi, and then advanced towards the Ganges to engage Shoojaooddowla, of Oude, in the general confederacy against the southern Hindoos, who were about to make an effort for the final extinction of the Mahometan rule. A new commander, untried in the northern wars, but accompanied by the Peshwah's heir and by all the Mahratta chiefs of name, was advancing from Poonah, confident in his fortune and in his superior numbers. Sedosheo Rao easily expelled the Afghan detachment from Delhi, while the main body was occupied in the Dooab, and he vainly talked of proclaiming young Wiswas Rao to be the paramount of India. But Ahmed Shah gained his great victory of Paneeput in the beginning of 1761, and both the influence of the Peshwah among his own people, and the power of the Mahrattas in Hindostan received a blow, from which neither fully recovered, and which, indirectly, aided the accomplishment of their desires by almost unheeded foreigners.*

The Afghan king returned to Caubul immediately after the battle, leaving deputies in Sirhind and Lahore,† and the Sikhs only appeared, during this campaign, as

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* Browne, *India Tracts*, ii 20, 21, Elphinstone, *History of India*, ii 670, &c, and Murray's *Runjeet Singh*, pp. 17, 20.

Elphinstone says the Mahratta leader only delayed to proclaim Wiswas the paramount of Hindustan until the Dooranees should be driven across the Indus See also Grand Duff's *History of the Mahrattas*, ii 142 and note

† Boolund Khan in Lahore, and Zein Khan in Sirhind, according to Browne, *India Tracts*, ii 21 23

predatory bands hovering round the Dooranee army but the absence of all regular government gave them additional strength, and they were not only masters of their own villages, but began to erect forts for the purpose of keeping stranger communities in check. Among others Churrut Singh, the grandfather of Runjeet Singh, established a stronghold of the kind in his wife's village of Goojraolee (or Goojranwala), to the northward of Lahore. The Dooranee governor or his deputy, Kwaja Obeid went to reduce it in the beginning of 1762* and the Sikhs assembled for its relief. The Afghan was repulsed he left his baggage to be plundered, and fled to shut himself up within the walls of Lahore.† The governor of Sirhind held his ground better for he was assisted by an active Mahometan leader of the country Hinghun Khan of Malerh Kotla but the Sikhs resented this hostility of an Indian Puthan as they did the treason of a Hindoo religionist of Jindeeala, who wore a sword like themselves and yet adhered to Ahmed Shah The army of the Khalsa" assembled at Amritsir the faithful performed their ablutions in the restored pool and perhaps the first regular "Gooroomutta," or diet or conclave, was held

* Murray (*Runjeet Singh*, p. 31) makes Kwaja Obeid the governor and he may have succeeded or represented Boolund Khan, whom other accounts show to have occasionally resided at Rhotas. Goojranwala is the more common, if less ancient, form of the name of the village attacked It was also the place of Runjeet Singh's birth, and is now a fair sized and thriving town (Compare *Moonshi Shahamut Alee's Sikhs and Afghans* p 51)

† Murray's *Runjeet Singh* p. 22, 23.

on this occasion. The possessions of Hinghun Khan were ravaged, and Jindeeala was invested, preparatory to attempts of greater moment.*

But the restless Ahmed Shah was again at hand. This prince, the very ideal of the Afghan genius, hardy and enterprizing, fitted for conquest, yet incapable of empire, seemed but to exist for the sake of losing and recovering provinces. He reached Lahore towards the end of 1762, and the Sikhs retired to the south of the Sutlej, perhaps with some design of joining their brethren who were watching Sirhind, and of overpowering Zein Khan the governor, before they should be engaged with Ahmed Shah himself; but in two long and rapid marches from Lahore, by way of Loodiana, the king came up with the Sikhs when they were about to enter into action with his lieutenant. He gave them a total defeat, and the Mahometans were as active in the pursuit as they had been ardent in the attack. The Sikhs are variously reported to have lost from twelve to twenty-five thousand men, and the rout is still familiarly known as the "Ghuloo Ghara," or great disaster.† Alha Singh, the founder of the present family of Putteeala, was among the prisoners, but his manly deportment pleased the warlike king, and the

* Compare Browne, *India Tracts*, ii 22, 23, and Murray's *Runjeet Singh*, p. 23

† The scene of the fight lay between Goojerwal and Bernala, perhaps twenty miles south from Loodiana Hinghou Khan, of Malerh Kotla, seems to have guided the Shah Compare Browne *Tracts*, ii, 23., Forster, *Travels*, i 319, and Murray's *Runjeet Singh*, p. 23 25. The action appears to have been fought in February, 1762.

conqueror may not have been insensible to the policy of widening the difference between a *Malwa* and a *Manjha* Singh. He was declared a raja of the state and dismissed with honour The Shah had an interview at Sirhind with his ally or dependent Nujeebooddowla, he made a Hindoo named Kabulee Mull his governor of Lahore, and then hastened towards Candahar to suppress an insurrection in that distant quarter, but he first gratified his own resentment, and indulged the savage bigotry of his followers, by destroying the renewed temples of Amritsir by polluting the pool with slaughtered cows by encasing numerous pyramids with the heads of decapitated Sikhs, and by cleansing the walls of desecrated mosques with the blood of his infidel enemies.*

The Sikhs were not cast down, they received daily accessions to their numbers a vague feeling that they were a people had arisen among them, all were bent on revenge, and their leaders were ambitious of dominion and of fame. Their first efforts were directed against the Puthan colony of Kussoor, which place they took and plundered and they then fell upon and slew their old enemy Hinghun Khan of Malerh Kotla. They next marched towards Sirhind and the court of Delhi was incapable of raising an arm in support of Mahometanism. Zein Khan the Afghan governor gave battle to the true or probable number of 40,000 Sikhs in the month of December 1763 but he was defeated and slain, and the plains of Sirhind, from the Sutlej to the

* Compare Forster, *Travels*, i. 320., and Murray's *Runjeet Singh*, p. 25

Jumna, were occupied by the victors without further opposition. Tradition still describes how the Sikhs dispersed as soon as the battle was won, and how, riding day and night, each horseman would throw his belt and scabbard, his articles of dress and accoutrement, until he was almost naked, into successive villages, to mark them as his. Sirhind itself was totally destroyed, and the feeling still lingers which makes it meritorious to carry away a brick from the place which witnessed the death of the mother and children of Govind Singh. The impulse of victory swept the Sikhs across the Jumna, and their presence in Seharunpoor recalled Nujeebooddowla from his contests with the Jats, under Sooruj Mull, to protect his own principality, and he found it prudent to use negotiation as well as force, to induce the invaders to retire.*

Nujeebooddowla was successful against the Jats, and Sooruj Mull was killed in fight, but the vuzeer, or regent, was himself besieged in Delhi, in 1764, by the son of the deceased chief, and the heir of Bhurtpoor was aided by a large body of Sikhs, as well as of Mahrattas more accustomed to defy the imperial power.† The loss of Sirhind had brought Ahmed Shah a seventh time across the Indus, and the danger of Nujeebooddowla led him onwards to the neighbourhood of the Jumna, but the siege of Delhi being raised—partly

* Compare Browne, *India Tracts*, ii 24, and Murray's *Runjeet Singh*, p 26, 27 Some accounts represent the Sikhs to have also become temporarily possessed of Lahore at this period

† Compare Browne, *Tracts*, ii 24 Sikh tradition still preserves the names of the chiefs who plundered the vegetable market at Delhi on this occasion

through the mediation or the defection of the Mahratta chief Holkar, and Ahmed Shah having perhaps rebellions to suppress in his native provinces—hastened back without making any effective attempt to recover Sirhind. He was content with acknowledging Alha Singh of Puteeala as governor of the province on his part, that chief having opportunely procured the town itself in exchange from the descendant of an old companion of the Gooroo's, to whom the confederates had assigned it. The Sikh accounts do not allow that the Shah retired unmolested, but describe a long and arduous contest in the vicinity of Amritsir which ended without either party being able to claim a victory, although it precipitated the already hurried retirement of the Afghans. The Sikhs found little difficulty in ejecting Kabulee Mull, the governor of Lahore, and the whole country, *from the Jehlum to the Sutlej, was partitioned* among chiefs and their followers, as the plains of Sirhind had been divided in the year previous. Numerous mosques were demolished, and Afghans in chains were made to wash the foundations with the blood of hogs. The chiefs then assembled at Amritsir and proclaimed their own sway and the prevalence of their faith, by striking a coin with an inscription to the effect that Gooroo Govind had received from Nanuk "Deg Tegh and Futteh," or grace, power and rapid victory *

* Compare Browne, *India Tracts* ii. 25. 27 ; Forster *Travels*, i. 321 323 Elphinstone, *Caubul*, ii. 296, 297 ; and Murray's *Runjeet Singh*, p 26, 27

The rupees struck were called "Govindshahee," and the use of the emperor's name was rejected (Browne, *Tracts*, ii. 28), although existing coins show that it was afterwards occasionally inserted by

The Sikhs were not interfered with for two years, and the short interval was employed in ascertaining their actual possessions, and in determining their mutual relations in their unaccustomed condition of liberty and power. Every Sikh was free, and each was a substantive member of the commonwealth, but their means, their abilities, and their opportunities were various and unequal, and it was soon found that all could not lead, and that there were even then masters as well as servants Their system naturally resolved itself into a theocratic confederate feudalism, with all the confusion and uncertainty attendant upon a triple alliance of the kind in a society half barbarous. God was their helper and only judge, community of faith or object was their moving principle and warlike array, the devotion to steel of Govind, was their material instrument. Year by year the "Surbut Khalsa," or whole Sikh people, met once at least at Amritsir, on the occasion of the festival of the mythological Rama, when the cessation of the periodical rains rendered military operations practicable. It was perhaps hoped that the performance of religious duties, and the awe inspired by so holy a place might cause

petty chiefs On most coins struck by Runjeet Singh, is the inscription, "Deg, wuh Tegh, wuh Futtee, wuh nusrut be dirung yaft, uz Nanuk Gooroo Govind Singh," that is, literally, "Grace, power, and victory, victory without pause, Gooroo Govind Singh obtained from Nanuk" For some observations on the words Deg, and Tegh, and Futteh, see notes, p 83-84 Chap III Browne (*Tracts*,) ii, Introd vii) gives no typical import to "Deg," and therefore leaves it meaningless, but he is perhaps more prudent than Colonel Sleeman, who writes of "the sword, the *pot* victory, and conquest being quickly found," &c., &c. (See *Rambles of an Indian Official*, ii 233, note)

selfishness to yield to a regard for the general welfare, and the assembly of chiefs was termed a "Gooroomutta," to denote that, in conformity with Govind's injunction they sought wisdom and unanimity of counsel from their teacher and the book of his word. * The leaders who thus piously met, owned no subjection to one another and they were imperfectly obeyed by the majority of their followers but the obvious feudal or military notion of a chain of dependence, was acknowledged as the law, and the federate chiefs partitioned their joint conquests equally among themselves and divided their respective shares in the same manner among their own leaders of bands while these again subdivided their portions among their own dependents agreeably to the general custom of subinfeudation.† This positive or understood rule was not

* "Mut" means understanding and "Mutta counsel or wisdom Hence Gooroomutta becomes, literally the advice of the Gooroo.

Malcolm (*Sketch*, p 52) considers, and Browne (*Tracts* ii. vii) leaves it to be implied, that Govind directed the assemblage of Gooroomutta but there is no authority for believing that he ordained any formal or particular institution, although doubtless the general scope of his injunctions, and the peculiar political circumstances of the times, gave additional force to the practice of holding diets or conclaves—a practice common to mankind everywhere, and systematised in India from time immemorial Compare Forster *Travels* i 328 &c. for some observations on the transient Sikh government of the time, and on the more enduring characteristics of the people. See also Malcolm, *Sketch*, p. 120, for the ceremonial forms of a Gooroomutta.

† Compare Murray *Runjeet Singh*, p. 33—37 From tracts of country which the Sikhs subdued but did not occupy "Rak'hee, literally protection money was regularly levied. The Rak'hee

however, always applicable to actual conditions, for the Sikhs were in part of their possessions "earth-born," or many held lands in which the mere withdrawal of a central authority had left them wholly independent of control. In theory such men were neither the subjects nor the retainers of any feudal chief, and they could transfer their services to whom they pleased, or they could themselves become leaders, and acquire new lands for their own use in the name of the Khalsa or commonwealth. It would be idle to call an everchanging state of alliance and dependence by the name of a constitution, and we must look for the existence of the faint outline of a system, among the emancipated Sikhs, rather in the dictates of our common nature, than in the enactments of assemblies, or in the injunctions of their religious guides. It was soon apparent that the strong were ever ready to make themselves obeyed, and ever anxious to appropriate all within their power, and that unity of creed or of race nowhere deters men from preying upon one another. A full persuasion of God's grace was nevertheless present to the mind of a Sikh, and every member of that faith continues to defer to the mystic Khalsa, but it requires the touch of genius,

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varied in amount from perhaps a fifth to a half of the rental or government share of the produce It corresponded with the Mahratta "Chowt," or fourth, and both terms meant "black mail," or, in a higher sense, tribute Compare Browne, *India Tracts*, ii viii, and *Murray's Runjeet Singh*, p 32 The subdivisions of property were sometimes so minute that two, or three, or ten Sikhs might become copartners in the rental of one village, or in the house tax of one street of a town, while the fact that jurisdiction accompanied such right increased the confusion

or the operation of peculiar circumstances, to give direction and complete effect to the enthusiastic belief of a multitude.

The confederacies into which the Sikhs resolved themselves have been usually recorded as twelve in number and the term used to denote such a union was the Arabic word "Misl" alike or equal.* Each Misl obeyed or followed a "Sirdar" that is simply a chief or leader, but so general a title was as applicable to the head of a small band as to the commander of a large host of the free and equal Singhs" of the system. The confederacies did not all exist in their full strength at the same time, but one Misl" gave birth to another for the federative principle necessarily pervaded the union and an aspiring chief could separate himself from his immediate party to form perhaps a greater one of his own. The Misls were again distinguished by titles derived from the name the village, the district, or the progenitor of the first or most eminent chief or from some peculiarity of custom or of leadership. Thus of the twelve—1 the *Bunghees* were so called from the real or fancied fondness of its members for the use of an intoxicating drug † 2. the *Nishaneeas* followed the

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* Notwithstanding this usual derivation of the term, it may be remembered that the Arabi term "Muslubut" (spelt with an other 'ﺲ' than that in misl) means armed men and warlike people. "Misl moreover means, in India, a file of papers, or indeed any thing serried or placed in ranks

† Bhung is a product of the hemp plant, and it is to the Sikhs what opium is to Rajpoots, and strong liquor to Europeans. Its qualities are abused to an extent prejudicial to the health and understanding

standard bearers of the united army, 3 the *Shuheeds* and *Nihungs* were headed by the descendants of honored martyrs and zealots, 4 the *Ramgurheeas* took their name from the Ram Rownee, or Fortalice of God, at Amritsir, enlarged into Ramgurh, or Fort of the Lord, by Jussa the Carpenter, 5. the *Nukeeas* arose in a tract of country to the south of Lahore so called 6 the *Alhoowaleeas* derived their title from the village in which Jussa who first proclaimed the existence of the army of the new theocracy, had helped his father to distil spirits, 7 the *Ghuneeas*, or *Kunheeas*, 8 the *Feizoolapooreeas* or *Singhpooreeas*, 9. the *Soohurchukeeas*, and 10. perhaps, the *Dullehwalas*, were similarly so denominated from the villages of their chiefs, 11 the *Kiora Singheeas* took the name of their third leader, but they were sometimes called *Punjgurheeas*, from the village of their first chief, and 12 the *Phoolkeeas* went back to the common ancestor of Alha Singh and other Sirdars of his family*

Of the Misls, all save that of Phoolkeea arose in the Punjab or to the north of the Sutlej, and they were termed *Manjha* Singhs, from the name of the country around Lahore, and in contradistinction to the *Malwa* Singhs, so called from the general appellation of the districts lying between Sirhind and Sirsa. The Feizool-

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* Captain Murray (*Runjeet Singh*, p 29 &c) seems to have been the first who perceived and pointed out the Sikh system of "Misls" Neither the organization nor the term is mentioned specifically by Forster, or Browne, or Malcolm, and at first Sir David Ochterloney considered and acted as if "misl" meant tribe or race, instead of party or confederacy (Sir D Ochterloney to the Government of India, 30th December, 1809)

apooreeas the Alhoowaleeas, and the Ramgurheeas, were the first who arose to distinction in Manjha, but the Bunghees soon became so predominant as almost to be supreme they were succeeded to some extent in this pre-eminence by the Kuneias, an offshoot of the Feizoolapooreeas until all fell before Runjeet Singh and the Sookerchukeeas. In Malwa the Phoolkeeas always admitted the superior merit of the Putteeala branch, this dignity was confirmed by Ahmed Shah's bestowal of a title on Alha Singh, and the real strength of the confederacy made it perhaps inferior to the Bunghees alone. The Nishaneeas and Shuheeds scarcely formed Misls in the conventional meaning of the term, but complementary bodies set apart and honored by all for particular reasons.* The Nukeias never achieved a high power or name and the Dullehwalas and Krora Singheeas, an offshoot of the Feizoolapooras acquired nearly all their possessions by the capture of Sirhind, and although the last acquired a great reputation it never became predominant over others.

The native possession of the Bunghees extended north from their cities of Lahore and Amritsir to the Jehlum and then down that river The Kuneias dwelt between Amritsir and the hills. The Sookerchukeeas lived south of the Bunghees, between the Chenab and Ravee. The Nukeias held along the Ravee, southwest

* Perhaps Captain Murray is scarcely warranted in making the Nishaneeas and Shuheeds regular Misls Other bodies, especially to the westward of the Jehlum might, with equal reason, have been held to represent separate confederacies. Captain Murray indeed in such matters of detail, merely expresses the local opinions of the neighborhood of the Sutlej.

of Lahore. The Feizoolapooreeas possessed tracts along the right bank of the Beeas and of the Sutlej, below its junction. The Alhoowaleeas similarly occupied the left bank of the former river The Dullehwalas possessed themselves of the right bank of the Upper Sutlej, and the Ramgurheeas lay in between these last two, but towards the hills. The Krora Singheeas also held lands in the Jalundhur Dooab The Phoolkeeas were native to the country about Soonam and Bhuttinda, to the south of the Sutlej, and the Shuheeds and Nishaneeas do not seem to have possessed any villages which they did not hold by conquest, and thus these two Misls, along with those of Manjha, who captured Sirhind, viz. the Bhunghees, the Alhoowaleeas, the Dullehwalas, the Ramgurheeas, and the Krora Singheeas, divided among themselves the plains lying south of the Sutlej and under the hills from Feerozpoor to Kurnal, leaving to their allies, the Phoolkeeas, the lands between Sirhind and Delhi, which adjoined their own possessions in Malwa.*

The number of horsemen which the Sikhs could muster have been variously estimated from seventy thousand to four times that amount, and the relative strength of each confederacy is equally a subject of doubt.† All that is certain is the great superiority of

* Dr Macgregor, in his *History of the Sikhs* (1 28, &c), gives an abstract of some of the ordinary accounts of a few of the Misls

† Forster in 1783 (*Travels*, 1 333), said the Sikh forces were estimated at 300,000, but might be taken at 200,000 Browne (*Tracts Illustrative Map*) about the same period enumerates 73,000 horsemen, and 25,000 foot. Twenty years afterwards Colonel Francklin said, in one work (*Life of Shah Alum*, note, p. 75), that the Sikhs

the Bungbees, and the low position of the Nukeias and Sookerchukeeas. The first could perhaps assemble 20,000 men in its widely scattered possessions, and the last about a tenth of that number and the most moderate estimate of the total force of the nation may likewise be assumed to be the truest. All the Sikhs were horsemen, and among a half barbarous people dwelling on plains, or in action with undisciplined forces, cavalry must ever be the most formidable arm The Sikhs speedily became famous for the effective use of the matchlock when mounted and this skill is said to have descended to them from their ancestors, in whose hands the bow was a fatal weapon Infantry were almost solely used to garrison forts or a man followed a misl on foot, until plunder gave him a horse or the means of buying one. Cannon was not used by the early Sikhs and its introduction was very gradual for its possession implies wealth or an organization both civil and military *

Besides the regular confederacies with their moderate degree of subordination there was a body of men who threw off all subjection to earthly governors, and who peculiarly represented the religious element of Sikhism These were the "Akalees" the immortals, or rather the soldiers of God who with their blue dress and

mustered 248,000 cavalry and in another book (*Life of George Thomas* note, p. 68), that they could not lead into action more than 64,000. George Thomas himself estimated their strength at 60,000 horse, and 5,000 foot. (*Life, by Francklin*, p. 274)

* George Thomas, giving the supposed status of 1800 A. D., says the Sikhs had 40 pieces of field artillery (*Life by Francklin*, p 274.)

bracelets of steel, claimed for themselves a direct institution by Govind Singh. The Gooroo had called upon men to sacrifice every thing for their faith, to leave their homes and to follow the profession of arms, but he and all his predecessors had likewise denounced the inert asceticism of the Hindoo sects, and thus the fanatical feeling of a Sikh took a destructive turn. The Akalees formed themselves in their struggle to reconcile warlike activity with the relinquishment of the world. The meek and humble were satisfied with the assiduous performance of menial offices in temples, but the fierce enthusiasm of others prompted them to act from time to time as the armed guardians of Amritsir, or suddenly to go where blind impulse might lead them, and to win their daily bread, even single-handed, at the point of the sword.* They also took upon themselves something of the authority of censors, and, although no leader appears to have fallen by their hands for defection to the Khalsa, they inspired awe as well as respect, and would sometimes plunder those

* Compare Malcolm (*Sketch*, p. 116), who repeats, and apparently acquiesces, in the opinion, that the Akalees were instituted as an order by Gooroo Govind. There is not, however, any writing of Govind's on record, which shows that he wished the Sikh faith to be represented by mere zealots, and it seems clear that the class of men arose as stated in the text.

So strong is the feeling that a Sikh should work, or have an occupation, that one who abandons the world, and is not of a warlike turn, will still employ himself in some way for the benefit of the community. Thus the author once found an Akalee repairing, or rather making, a road, among precipitous ravines, from the plain of the Sutlej to the petty town of Keeritpoor. He avoided intercourse with the world generally. He was highly

who had offended them or had injured the common wealth The passions of the Akalees had full play until Runjeet Singh became supereme and it cost that able and resolute chief much time and trouble at once to suppress them and to preserve his own reputation with the people.

esteemed by the people, who left food and clothing at particular places for him and his earnest persevering character had made an evident impression on a Hindoo shepherd boy who had adopted part of the Akalee dress, and spoke with awe of the devotee.

CHAPTER V.

FROM THE INDEPENDENCE OF THE SIKHS TO THE ASCENDANCY OF RUNJEET SINGH AND THE ALLIANCE WITH THE ENGLISH.

1765—1808 9

Ahmed Shah's last invasion of India.—The pre-eminence of the Bunghee Confederacy among the Sikhs—Tymoor Shah's expeditions.—The Phoolkeea Sikhs in Hurreeana—Zabita Khan.—The Kuncia Confederacy paramount among the Sikhs.—Muha Singh Sookerchukeea becomes conspicuous.—Shah Zuman's invasions and Runjeet Singh's rise—The Mahrattas under Sindhia predominant in Northern India—General Perron and George Thomas.—Alliances of the Mahrattas and Sikhs.—Intercourse of the English with the Sikhs—Lord Lake's campaigns against Sindhia and Holkar.—First treaty of the English with the Sikhs.—Preparations against a French invasion of India—Treaty of alliance with Runjeet Singh, and of protection with Cis-Sutlej Sikh Chiefs

THE Sikhs had mastered the upper plains from Kurnal and Hansee to the banks of the Jehlum. The necessity of union was no longer paramount, and rude untaught men are ever prone to give the rein to their passions, and to prefer their own interests to the welfare of the community. Some dwelt on real or fancied injuries, and thought the time had come for

ample vengeance others were moved by local associations to grasp at neighboring towns and districts and the truer Sikh alone at once resolved to extend his faith, and to add to the general domain of the Khalsa by complete conquest or by the imposition of tribute. When thus about to arise, after their short repose refreshed and variously inclined they were again awed into unanimity by the final descent of Ahmed Shah. That monarch whose activity and power declined with increase of years and the progress of disease made yet another attempt to recover the Punjab the most fertile of his provinces. He crossed the Indus in 1767 but he avoided Lahore and advanced no further than the Sutlej He endeavoured to conciliate when he could no longer overcome, and he bestowed the title of Maharaja, and the office of military commander in Sirhind upon the warlike Ummer Singh who had succeeded his grandfather as chief of Putteeala, or of the Malwa Sikhs. He likewise saw a promising ally in the Rajpoot chief of Kototch and he made him his deputy in the Jalundhur Dooab and adjoining hills. His measures were interrupted by the defection of his own troops twelve thousand men marched back towards Caubul and the Shah found it prudent to follow them. He was harassed in his retreat, and he had scarcely crossed the Indus before Sher Shah's mountain stronghold of Rhotas was blockaded by the Sookerchukeeas, under the grandfather of Runjeet Singh, aided by a detachment of the neighbouring Bunghee confederacy The place fell in 1768 and the Bunghees almost immediately afterwards occupied the country as far as Rawul Pindee and the vale of Khanpoor the Gukkers

showing but little of that ancient hardihood which distinguished them in their contests with invading Moghuls *

The Bunghees, under Hurree Singh, next marched towards Mooltan. but they were met by the Mahometan Daoodpotras, who had migrated from Sindh on learning Nadir Shah's intention of transplanting them to Ghuznee, and had established the principality now known as Buhawulpoor † The chief, Mobarik Khan, after a parley with Hurree Singh, arranged that the neutral town of Pakputtun, held by a Mussulman saint of eminence, should be the common boundary Hurree Singh then swept towards Dera Ghazee Khan and the Indus, and while thus employed, his feudatory of Goojrat, who had recently taken Rawul Pindee, made

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* Forster, *Travels*, i 323, Elphinstone, *Caubul*, ii 297, *Murray's Runjeet Singh*, p 27, *Moorcroft's Travels* i 127, and manuscript accounts consulted by the author

† When Nadir Shah proceeded to establish his authority in Sindh, he found the ancestor of the Buhawulpoor family a man of reputation in his native district of Shikarpoor The Shah made him the deputy of the upper third of the province, but, becoming suspicious of the whole clan he resolved on removing it to Ghuznee The tribe then migrated up the Sutlej, and seized lands by force The Daoodpotras are so called from Daood (David), the first of the family who acquired a name They fabulously trace their origin to the Caliph Abbas, but they may be regarded as Sindhian Belotches, or as Belotches changed by a long residence in Sindh In establishing themselves on the Sutlej, they reduced the remains of the ancient Lunggas and Johyas to further insignificance, but they introduced the Sindhian system of canals of irrigation, and both banks of the river below Pakputtun bear witness to their original industry and love of agriculture.

an attempt to penetrate into Cashmeer by the ordinary road but was repulsed with loss. On the Jumna, and in the great Dooab the old Nujeebooddowla was so hard pressed by Raee Singh Bunghee, who emulated him as a paternal governor in his neighbouring town and district of Jagadhree, and by Bughel Singh Krora Singheea, that he proposed to the Mahrattas a joint expedition against these new lords. His death, in 1770, put an end to the plan, for his succeeding son had other views, and encouraged the Sikhs as useful allies upon an emergency.*

Hurree Singh Bunghee died, and he was succeeded by Jhunda Singh who carried the power of the Misl to its height. He rendered Jummoo tributary and the place was then of considerable importance for the repeated Afghan invasions, and the continued insurrections of the Sikhs had driven the transit trade of the plains to the circuitous but safe route of the hills, and the character of the Rajpoot chief Runjeet Deo was such as gave confidence to traders, and to induce them to flock to his capital for protection. The Puthans of Kussoor were next rendered tributary, and Jhunda Singh then deputed his lieutenant, Mujja Singh, against Mooltan but that leader was repulsed and slain by the united forces of the joint Afghan governors, and of the Buhawulpoor chief. Next year or in 1772 these joint managers quarrelled and as one of them asked the assistance of Jhunda Singh, that unscrupulous leader was enabled to possess himself of the citadel.

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* The memoirs of the Buhawulpoor family, and manuscript Sikh histories. Compare also Forster, *Travels* i. 148.

On his return to the northward, he found that a rival claimant of the Jammoo chiefship had obtained the aid of Churrut Shingh Sookerchukeea, and of Jaee Singh, the rising leader of the Kuneia Misl. Churrut Singh was killed by the bursting of his own matchlock, and Jaee Singh was then so base as to procure the assassination of Jhunda Singh. Being satisfied with the removal of this powerful chief, the Kuneia left the Jummoo claimant to prosecute his cause alone, and entered into a league with the old Jussa Singh Alhoowaleea, for the expulsion of the other Jussa Singh the Carpenter, who had rendered Ahmed Shah's nominal deputy, Ghumund Chund of Kototch, and other Rajpoots of the hills, his tributaries. The Ramgurheea Jussa Singh was at last beaten, and he retired to the wastes of Hurreeana to live by plunder. At this time, or about 1774, died the Mahometan governor of Kanggra. He had contrived to maintain himself in independence, or in reserved subjection to Delhi or Caubul, although the rising chief of Kototch had long desired to possess so famous a stronghold. Jaee Singh Kuneia was prevailed on to assist him, and the place fell, but the Sikh chose to keep it to himself, and the possession of the imperial fort aided him in his usurpation of Jussa Singh's authority over the surrounding Rajas and Thakoors.*

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* The memoirs of the Buhawulpoor chief and manuscript Sikh accounts. Compare *Murray's Runjeet Singh*, p 38 &c, and Forster, *Travels*, i 283 286 336

Runjeet Deo, of Jummoo, died in 1770 A. D

Churrut Singh was killed accidentally, and Jhunda Singh was assassinated, in 1774.

In the south of the Punjab the Bunghee Sikhs con tinued predominant they seem to have possessed the strong fort of Munkehra as well as Mooltan and to have levied exactions from Kalabagh downwards. They made an attempt to carry Shooja abad a place built by the Afghans on losing Mooltan but to have failed Tymoor Shah who succeeded his father in 1773 was at last induced or enabled to cross the Indus but his views were directed towards Sindh Buhawulpur and the Lower Punjab, and he seems to have had no thought of a reconquest of Lahore. In the course of 1777 78 two detachments of the Caubul army un successfully endeavored to dislodge the Sikhs from Mooltan, but in the season of 1778-79, the Shah marched in person against the place. Ghunda Singh the new leader of the Bunghees was embroiled with other Sikh chiefs and his lieutenant surrendered the citadel *after a show of resistance.* Tymoor Shah reigned until 1793 but he was fully occupied with Sindhian, Cashmere, and Oozbek rebellions, the Sikhs were even unmolested in their possession of Rawul Pindee, and their predatory horse traversed the plains of Chutch up to the walls of Attok.*

In the direction of Hurreeana and Delhi the young Ummar Singh Phoolkeea began systematically to ex tend and consolidate his authority He acquired Sirsa

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Hurree Singh Bunghee appears to have been killed in battle with Ummer Singh, of Putteala, about 1770.

* Memoirs of the Buhawulpoor chief and other manuscript histories. Compare Browne, *India Tracts* ii. 28 and Forster *Travels* i. 324. Elphinstone (*Caubul*, ii 303.) makes 1781 and not 1779, the date of the recovery of Mooltan from the Sikhs.

and Futtehabad, his territories marched with those of Beekaneer and Buhawulpoor, and his feudatories of Jeend and Kythul possessed the open country around Hansee and Rohtuk He was recalled to his capital of Putteeala, by a final effort of the Delhi court to re-establish its authority in the province of Sirhind. An army, headed by the minister of the day, and by Furkhoonda Bukht, one of the imperial family, marched in the season 1779-80 Kurnal was recovered; some payments were promised, and the eminent Krora-Singheea leader, Bughel Singh, tendered his submission Dehsoo Singh, of Kythul, was seized and heavily mulcted, and the army approached Putteeala Ummer Singh promised fealty and tribute, and Bughel Singh seemed sincere in his mediation, but suddenly it was learnt that a large body of Sikhs had marched from Lahore, and the Moghul troops retired with precipitation to Paneeput, not without a suspicion that the cupidity of the minister had been gratified with Sikh gold, and had induced him to betray his master's interests. Ummer Singh died in 1781, leaving a minor son of imbecile mind. Two years afterwards a famine desolated Hurreeana, the people perished or sought other homes, Sirsa was deserted, and a large tract of country passed at the time from under regular sway, and could not afterwards be recovered by the Sikhs *

In the Dooab of the Ganges and Jumna, the Sikhs rather subsidized Zabita Khan, the son of Najebood-

* Manuscript histories, and Mr Ross Bell's report of 1836, on the Bhutteeana boundary. Compare *Francklin's Shah Alum*, p 86 90, and Shah Nuwaz Khan's Epitome of Indian History, called *Mirrit-i-Aftab Nooma*

dowla, then became his deferential allies That chief had design perhaps, upon the titular ministry of the empire, and having obtained a partial success over the imperial troops he proceeded in 1776 towards Delhi, with the intention of laying siege to the city But when the time for action arrived he mistrusted his power, the emperor on his part, did not care to provoke him too far a compromise was effected and he was confirmed in his possession of Seharunpoor On this occasion Zabita Khan was accompanied by a body of Sikhs, and he was so desirous of conciliating them that *he is credibly said to have adopted their dress to have* received the Pahul or initiatory rite, and to have taken the new name of Dhurrum Singh *

Jussa Singh Ramgurheea when compelled to fly to the Punjab by the Kuneia and Alhoowaleea confederacies was aided by Ummer Singh Phoolkeea in establishing himself in the country near Hissar whence he proceeded to levy exactions up to the walls of Delhi. In 1781 a body of Phoolkeea and other Sikhs marched down the Dooab but they were successfully attacked under the walls of Meerut by the imperial commander *Mirza Shuffee Beg and Gajput Singh of Jeend* was taken prisoner Nevertheless, in 1783 Bughel Singh and other commanders were strong enough to propose crossing the Ganges, but they were deterred by the watchfulness of the Oude troops on the opposite bank. The destructive famine already alluded to seems to have compelled Jussa Singh to move into the Dooab and in

* Compare Forster *Travels* i. 325 Browne, *India Tracts* ii. 29 and *Francklin's Shah Alum*, p. 72.

1785, Rohilkhund was entered by the confederates and plundered as far as Chundosee, which is within forty miles of Bareilly At this period Zabita Khan was almost confined to the walls of his fort of Ghowsgurh, and the hill Raja of Gurhwal, whose ancestor had received Dara as a refugee in defiance of Aurungzeb, had been rendered tributary, equally with all his brother Rajpoots, in the lower hills westward to the Chenab The Sikhs were predominant from the frontiers of Oude to the Indus, and the traveller Forster amusingly describes the alarm caused to a little chief and his people by the appearance of *two* Sikh horsemen under the walls of their fort, and the assiduous services and respectful attention which the like number of troopers met with from the local authorities of Gurhwal, and from the assembled wayfarers at a place of public reception *

In the Punjub itself Jaee Singh Kuneia continued to retain a paramount influence He had taken Maha Singh, the son of Churrut Singh Sookerchukeea, under his protection, and he aided the young chief in capturing Russoolnuggur on the Chenab, from a Mahometan family Muha Singh's reputation continued to increase, and, about 1784-85, he so far threw off his dependence upon Jee Singh as to interfere in the affairs of Jummoo on his own account His interference is understood to have ended in the plunder of the place, but the wealth he had obtained and the independence he had shown, both roused the anger of Jaee Singh, who rudely repelled Muha Singh's apologies and offers of atonement,

* Forster, *Travels*, i 228, 229 262, 326 and note Compare also *Francklin's Shah Alum*, p. 93, 94, and the Persian epitome *Mu[illegible]t-i-Aftab Nooma*

and the spirit of the young chief being fired he went away resolved to appeal to arms. He sent to Jussa Singh Ramgurheea, and that leader was glad of an opportunity of recovering his lost possessions. He joined Muha Singh and easily procured the aid of Sunsar Chund, the grandson of Ghumund Chund of Kotoch. The Kuneias were attacked and defeated. Goorbukhsh Singh, the eldest son of Jaee Singh, was killed and the spirit of the old man was effectually humbled by this double sorrow. Jussa Singh was restored to his territories and Sunsar Chund obtained the fort of Kanggra, which his father and grandfather had been so desirous of possessing. Muha Singh now became the most influential chief in the Punjab and he gladly assented to the proposition of Sudda Kour the widow of Jaee Singh's son that the alliance of the two families should be cemented by the union of her infant daughter with Runjeet Singh the only son of Muha Singh and who was born to him about 1780. Muha Singh next proceeded to attack Goojrat, the old Bhunghee chief of which Goojer Singh his father's confederate, died in 1791 but he was himself taken ill during the siege, and expired in the beginning of the following year at the early age of twenty-seven.*

* Manuscript histories and chronicles. Compare Forster's *Travels* i 288 *Murray's Runjeet Singh* p 42, 48 and *Moorcroft's Travels* i 127. The date of 1785, 1786, for the reduction of the Kuneias and the restoration of Jussa Singh &c., is preferred to 1782, which is given by Murray partly because the expedition to Rohilkhund took place in 1785, as related by Forster (*Travels* i 326, note), and Jussa Singh is generally admitted to have been engaged in it, being then in banishment.

Persia to invade the Afghan territories. Shah Zuman renewed his invasion in 1798 a body of five thousand men sent far in advance, was attacked and dispersed on the Jehlum but he entered Lahore without opposition and renewed his measures of mixed conciliation and threat. He found an able but doubtful partizan in Nizamooddeen Khan, a Pathan of Kussoor who had acquired a high local reputation and he was employed to coerce such of the Sikhs including the youthful Runjeet Singh as p rtinaciously kept aloof *They* distrusted the Shah s honor but Nizamooddeen distrusted the permanence of his power and he prudently forbore to proceed to extremities against neighbors to whom he might soon be left a prey Some resultless skirmishing took place, but the designs of Mehmood who had obtained the support of Persia, again withdrew the ill fated king to the west, and he quitted Lahore in the beginning of 1799. During this second invasion the character of Runjeet Singh seem to have impressed itself not only on other Sikh leaders but on the Dooranee Shah. He coveted Lahore which was associated in the minds of men with the possession of power and as the king was unable to cross his heavy artillery over the flooded Jehlum he made it known to the aspiring chief that their transmission would be an acceptable service. As many pieces of cannon as could be readily extricated were sent after the Shah and Runjeet Singh procured what he wanted, a royal investiture of the capital of the Punjab. Thenceforward the history of the Sikhs gradually centres in th ir great Muharaja but the revival of the Mahratta power in Upper India and the appearance of the English on the scene require that the

had contrived by an adventurous step to become the master of the emperor's person little more than a year afterwards. He was led on from one excess to another till at last in 1788 he put out the eyes of his unfortunate sovereign plundered the palace in search of imaginary treasures and declared an unheeded youth to be the successor of Akber and Aurungzeb. These proceedings facilitated Sindhia s views nor was his supremacy unwelcome in Delhi after the atrocities of Gholam Qadir and the savage Afghans. His regular administra tion soon curbed the predatory Sikhs and instead of allies they found that they would merely be toler ated as dependants or as servants. Raee Singh the patriarchal chief of Jugadhree was retained for the time as farmer of considerable district* in the Dooab and during ten years three expeditions of exaction were directed against Putteeala and other states in the province of Sirhind Putteeala was managed with some degree of prudence by Nanoo Mull the Hindoo Deewan of the deceased Ummar Singh, but he seems to have trusted for military support to Bughel Singh the leader of the Krora Singheea, who contrived to main tain a large body of horse, partly as a judicious mediator and partly by helping Putteeala in levying contribu tions on weaker brethren in aid of the Moghul and Mahratta demands, which could neither be readily met nor prudently resisted *

General Perron succeeded his countryman De Boigne in the command of Dowlut Rao Sindhia s

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* Manuscript accounts Compare *Francklin's Shah Alum* p. 179—185.

largest regular forces, in the year 1797, and he was soon after appointed the Muharaja's deputy in Northern India. His ambition surpassed his powers, but his plans were nevertheless systematic, and he might have temporarily extended his own, or the Mahratta, authority to Lahore, had not Sindhia's influence been endangered by Holkar, and had not Perron's own purposes been crossed by the hostility and success of the adventurer George Thomas. This Englishman was bred to the sea, but an eccentricity of character, or a restless love of change, caused him to desert from a vessel of war at Madras in 1781-82, and to take military service with the petty chiefs of that presidency He wandered to the north of India, and in 1787 he was employed by the well known Begum Sumroo, and soon rose high in favor with that lady In six years he became dissatisfied, and entered the service of Apa Kunda Rao, one of Sindhia's principal officers, and under whom De Boigne had formed his first regiments While in the Mahratta employ, Thomas defeated a party of Sikhs at Kurnal, and he performed various other services, but seeing the distracted state of the country, he formed the not impraticable scheme of establishing a separate authority of his own He repaired the crumbling walls of the once important Hansee, he assembled soldiers about him, cast guns, and deliberately proceeded to acquire territory. Perron was apprehensive of his power—the more so, perhaps, as Thomas was encouraged by Holkar, and supported by Lukwa Dada and other Mahrattas, who entertained a great jealousy of the French commandant *

* Francklin's *Life of George Thomas*, P I 79, 107 &c, and

In 1799 Thomas invested the town of Jeend be[1] longing to Bhag Singh of the Phoolkeea confederacy The old chief Bughel Singh Krora Singheea, and the Amazonian sister of the imbecile Raja of Putteeala relieved the place but they were repulsed when they attacked Thomas on his retreat to Hansee. In 1800 Thomas took Futtehabad which had been deserted during the famine of 1783 and subsequently occupied by the predatory Bhuttees of Hurreeana then rising *into local repute notwithstanding the efforts of the* Putteeala chief who however affected to consider them as his subjects and gave them some aid against Thomas, Putteeala was the next object of Thomas s ambition and he was encouraged by the temporary secession of the sister of the chief but the aged Tara Singh of the Dullehwala confederacy interfered and Thomas had to act with caution He obtained never theless a partial success over Tara Singh he received the submission of the Puthans of Malerh Kotla, and he was welcomed as a deliverer by the converted Ma hometans of Raeekot who had held Loodiana for some time, and all of whom were equally jealous of the Sikhs. At this time Sahib Singh a Behdee of the race of Nanuk pretended to religious inspiration and having collected a large force, he invested Loodiana took the town of Malerh Kotla, and called on the English ad venturer to obey him as the true representative of the Sikh prophet But Sahib Singh could not long impose even on his countrymen and he had to retire across the

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Major Smith s *Sketch of Regular Corps in the Service of Indian Princes* p 118 &c.

Sutlej. Thomas's situation was not greatly improved by the absence of the Behdee, for the combination against him was general, and he retired from the neighborhood of Loodiana towards his stronghold of Hansee. He again took the field, and attacked Sufeedon, an old town belonging to the chief of Jeend. He was repulsed, but the place not appearing tenable, it was evacuated, and he obtained possession of it. At this time he is said to have had ten battalions and sixty guns, and to have possessed a territory yielding about 450,000 rupees, two-thirds of which he held by right of seizure, and one-third as a Mahratta feudatory, but he had rejected all Perron's overtures with suspicion, and Perron was resolved to crush him Thomas was thus forced to come to terms with the Sikhs, and he wished it to appear that he had engaged them on his side against Perron, but they were really desirous of getting rid of one who plainly designed their ruin, or at least their subjection, and the alacrity of Putteeala in the Mahratta service induced a promise, on the part of the French commander, of the restitution of the conquests of Ummer Singh in Hurreeana. After twice beating back Perron's troops at points sixty miles distant, Thomas was compelled to surrender in the beginning of 1802, and he retired into the British provinces, where he died in the course of the same year *

Perron had thus far succeeded. His lieutenant, by name Bourquin, made a progress through the Cis-Sutlej states to levy contributions, and the commander

* See generally *Francklin's Life of Thomas*, and p 21 &c. of *Major Smith's Sketch of Regular Corps in Indian States* The

himself dreamt of a dominion reaching to the Afghan hills and of becoming as independent of Sindhia as that chief was of the Peshwah * He formed an engagement with Runjeet Singh for a joint expedition to the Indus and for a partition of the country south of Lahore, † but Holkar had given a rude shock to Sindhia s power and Perron had long evaded a compliance with the Maharaja s urgent calls for troops to aid him *where support was most essential* Sindhia became involved with the English and the interested hesitation of Perron was punished by his supercession He was not able, or he did not try to recover his authority by vigorous military operations he knew he had committed himself and he effected his escape from the suspicious Mahrattas to the safety and repose of the British territories which were then about to be extended by the victories of Delhi and Laswaree, of Assye and Argaum ‡

In the beginning of the eighteenth century the agents of the infant company of English merchants were vexatiously detained at the imperial court by the insur

Sikh accounts attribute many exploits to the sister of the Raja of Putteeala, and among them an expedition into the hill territory of Nahun, the state from which Putteeala wrested the vale of Pinjor with its hanging gardens, not, however, without the aid of Bourquin, the deputy of Perron.

* Malcolm (*Sketch*, p. 106) considers that Perron could easily have reduced the Sikhs, and mastered the Punjab.

† This alliance is given on the authority of a representation made to the Resident at Delhi agreeably to his letter to Sir David Ochterloney of 5th July 1814

‡ Compare *Major Smith's Account of Regular Corps in Indian States*, p. 31 &c.

rection of the Sikhs under Bunda, and the discreet "factors," who were petitioning for some trading privileges, perhaps witnessed the heroic death of the national *Singhs*, the soldiers of the "Khalsa," without comprehending the spirit evoked by the genius of Govind, and without dreaming of the broad fabric of empire about to be reared on their own patient labours * Forty years afterwards, the merchant Omichund played a conspicuous part in the revolution which was crowned by the battle of Plassey, but the sectarian *Sikh*, the worldly votary of Nanuk, who used religion as a garb of outward decorum, was outwitted by the audacious falsehood of Clive, he quailed before the stern scorn of the English conqueror, and he perished the victim of his own base avarice † In 1784 the progress of the

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* See Orme, *History*, ii 22 &c, and Mill, Wilson's edition, iii 34 &c. The mission was two years at Delhi, during 1715, 1716, 1717, and the genuine patriotism of Mr Hamilton, the surgeon of the deputation, mainly contributed to procure the cession of thirty-seven villages near Calcutta, and the exemption from duty of goods protected by English passes This latter privilege was a turning point in the history of the English in India, for it gave an impulse to trade, which vastly increased the importance of British subjects, if it added little to the profits of the associated merchants

In the Grunth of Gooroo Govind there are at least four allusions to Europeans, the last referring specially to an Englishman 1st, in the *Akal Stoot*, Europeans are enumerated among the tribes inhabiting India, 2nd and 3d, in the *Kulkee* chapters of the 24 *Owtars*, apparently in praise of the systematic modes of Europeans; and 4th, in the Persian *Hikayuts*, where both a European and an Englishman appear as champions for the hand of a royal damsel, to be vanquished, of course, by the hero of the tale

† That Omichund was a Sikh, is given on the authority of

genuine Sikhs attracted the notice of Hastings and he seems to have thought that the presence of a British agent at the court of Delhi might help to deter them from molesting the Vizier of Oude.* But the Sikhs had learnt to dread others as well as to be a cause of fear and shortly afterwards they asked the British Resident to enter into a defensive alliance against the Mahrattas, and to accept the services of thirty thousand horsemen who had posted themselves near Delhi to watch the motions of Sindhia.† The English had then a slight knowledge of a new and distant people, and an estimate two generations old may provoke a smile from the protectors of Lahore. "The Sikhs says Colonel Francklin "are in their persons tall their aspect is ferocious, and their eyes piercing they resemble the Arabs of the Euphrates but they speak the language of the Afghans their collected army amounts to 250 000 men a terrific force yet from want of union not much to be dreaded "‡ The judicious and observing Forster put some confidence in similar statements of their vast array but he estimated more surely than any other early writer, the real character of the Sikhs, and the remark of 1783 that an able chief

Forster *Travels* i. 337 That he died of a broken heart is doubted by Professor Wilson (Mills, *India*, iii 192. note edition 1840.)

* Brown, *India Tracts* ii. 29, 30. and *Francklin's Shah Alum* p 115, 116

† Auber's *Rise and Progress of the British Power in India*, ii 26, 27 The chief who made the overtures was Dooltcha Singh of Rudowr on the Jumna who afterwards entered Sindhia s service. Compare *Francklin's Shah Alum*, p 78., note

‡ Francklin's *Shah Alum* p 75 77 78.

would probably attain to absolute power on the ruins of the rude commonwealth, and become the terror of his neighbors, has been amply borne out by the career of Runjeet Singh *

The battle of Delhi was fought on the 11th September, 1803, and five thousand Sikhs swelled an army which the speedy capture of Allygurh had taken by surprise † The Mahrattas were overthrown, and the Sikhs dispersed, but the latter soon afterwards tendered their allegiance to the British commander Among the more important chiefs whose alliance, or whose occasional services were accepted, were Bhaee Lal Singh of Kythul, who had witnessed the success of Lord Lake, Bhag Singh the patriarchal chief of Jeend, and, after a time, Bhungga Singh the savage master of Thunehsir ‡ The victory of Laswaree was fought within two months, and the Mahratta power seemed to be annihilated in Northern India. The old blind emperor Shah Alum was again flattered with the semblance of kingly power, his pride was soothed by the demeanor of the conqueror, and, as the Moghul name was still imposing, the feelings of the free but loyal soldier were doubtless gratified by the bestowal of a title which declared an English nobleman to be "the sword of the state" of the great Tamerlane §

The enterprising Jeswunt Rao Holkar, had by this time determined on the invasion of Upper India and the

* Forster's *Travels*, ii 340 See also p 324, where he says the Sikhs had raised in the Punjab a solid structure of religion

† Major Smith's *Account of Regular Corps in Indian States*, p 34

‡ Manuscript Memoranda of Personal Inquiries

§ Mill's *History of British India*, Wilson's edition, vi 510

retreat of Colonel Monson buoyed him up with hopes of victory and dominion. Delhi was invested and the Dooab was filled with troops, but the successful defence of the capital by Sir David Ochterloney, and the reverse of Deeg drove the great marauder back into Rajpootana. During these operations a British detachment under Colonel Burn was hard pressed at Shamlee, near Seharunpoor and the opportune assistance of Lal Singh of Kythul and Bhag Singh of Jeend contributed to its ultimate relief * The same Sikh chiefs deserved and received the thanks of Lord Lake for attacking and killing one Eeka Rao a Mahratta commander who had taken up a position between Delhi and Puneeput, but others were disposed to adhere to their sometime allies and Sher Singh of Booreea fell in action with Colonel Burn and the conduct of Goordut Singh of Ladwa induced the British general to deprive him of his villages in the Dooab and of the town of Kurnal †

In 1805 Holkar and Ameer Khan again moved northward, and proclaimed that they would be joined by the Sikhs and even by the Afghans but the rapid movements of Lord Lake converted their advance into a retreat or a flight. They delayed some time at Putteeala, and they did not fail to make a pecuniary profit

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* Manuscript memoranda Both this and in 1804, and the opposition of the Sikhs at Delhi, in 1803, seem to have escaped the notice of English observers, or to have been thought undeserving of record by English historians. (*Mill's History* vi. 503, 591 edition 1840.)

† Manuscript memoranda of written documents and of personal inquiries.

out of the differences then existing between the imbecile Raja and his wife,* but when the English army reached the neighborhood of Kurnal, Holkar continued his retreat towards the north, levying contributions where he could, but without being joined by any of the Sikh chiefs of the Cis-Sutlej states. In the Punjab itself, he is represented to have induced some to adopt his cause, but Runjeet Singh long kept aloof, and when at last he met Holkar at Amritsir, the astute young chief wanted aid in reducing Kussoor before he would give the Mahrattas any assistance against the English. Ameer Khan would wish it to be believed, that *he* was unwilling to be a party to an attack upon good Mahometans, and it is certain that the perplexed Jeswunt Rao talked of hurrying on to Peshawur, but Lord Lake was in force on the banks of the Beeas, the political demands of the British commander were moderate, and on the 24th December, 1805, an arrangement was come to, which allowed Holkar to return quietly to Central India.†

Lord Lake was joined on his advance by the two chiefs, Lal Singh and Bhag Singh, whose services have already been mentioned, and at Putteeala he was welcomed by the weak and inoffensive Sahib Singh, who presented the keys of his citadel, and expatiated on his

* Ameer Khan, in his *Memoirs* (p 276), says characteristically, that Holkar remarked to him, on observing the silly differences between the Raja and the Ranee, "God has assuredly sent us these two pigeons to pluck, do you espouse the cause of the one, while I take up with the other"

† Compare *Ameer Khan's Memoirs*, p 275, and *Murray's Runjeet Singh*, p 57 &c.

devotion to the British government. Bhag Singh was the maternal uncle of Runjeet Singh and his services were not unimportant in determining that calculating leader to avoid an encounter with disciplined battalions and a trained artillery Runjeet Singh is believed to have visited the British camp in disguise, that he might himself witness the military array of a leader who had successively vanquished both Sindhia and Holkar * and he was moreover too acute to see any permanent advantage in linking his fortunes with those of men reduced to the condition of fugitives. Futteh Singh Alhoowaleea, the grand nephew of Jussa Singh Kullal and the chosen companion of the future Muharaja, was the medium of intercourse and an arrangement was soon entered into with "Sirdars Runjeet Singh and Futteh Singh jointly which provided that Holkar should be compelled to retire from Amritsir and that so long as the two chiefs conducted themselves as friends the English government would never form any plans for the seizure of their territories † Lord Lake entered into a friendly correspondence with Sunsar Chund of Kototch who was imitating Runjeet Singh by bringing the petty hill chiefs under subjection but no engagement was entered into and the British commander returned to the provinces by the road of Ambala and Kurnal ‡

The connection of Lord Lake with many of the Sikh

* See Moorcroft, *Trav Is* i 102

† See the treaty itself Appendix VII

‡ The public records show that a newswriter was maintained for some time in Kototch and the correspondence about Sunsar Chund leaves the impression that Runjeet Singh could never

chiefs of Sirhind had been intimate, and the services of some had been opportune and valuable. Immediately after the battle of Delhi, Bhag Singh of Jeend, was upheld in a jagheer which he possessed near that city, and in 1804 another estate was conferred jointly on him and his friend Lal Singh of Kythul. In 1806, these leaders were further rewarded with life grants, yielding about 11,000*l* a year, and Lord Lake was understood to be willing to have given them the districts of Hansee and Hissar on the same terms, but these almost desert tracts were objected to as unprofitable. Other petty chiefs received rewards corresponding with their services, and all were assured that they should continue to enjoy the territorial possessions which they held at the time of British interference, without being liable to the payment of tribute These declarations or arrangements were made when the policy of Lord Wellesley was suffering under condemnation, the reign of the English was to be limited by the Jumna, a formal treaty with Jeypoor was abrogated, the relations of the Indian government with Bhurtpoor were left doubtful and, although nothing was made known to the Sikh chiefs of Sirhind, their connection with the English came virtually to an end, so far as regarded the reciprocal benefits of alliance *

wholly forget the Raja's original superiority, nor the English divest themselves of a feeling that he was independent of Lahore

* The original grants to Jeend, and Kythul, and others and also similar papers of assurance, are carefully preserved by the several families, and the various English documents show that Bhag Singh, of Jeend, was always regarded with much kindliness by Lord Lake, Sir John Malcolm, and Sir David Ochterloney

It is now necessary to return to Runjeet Singh, whose authority had gradually become predominant among the Sikh people. His first object was to master Lahore from the incapable chiefs of the Bunghee confederacy who possessed it, and before Shah Zuman had been many months gone effect was given to his grant by a dexterous mixture of force and artifice. Runjeet Singh made Lahore his capital and with the aid of the Kunefa (or Gunnee) confederacy he easily reduced the whole of the Bunghees to submission although they were aided by Nizamooddeen Khan of Kussoor In 1801 2 the Puthan had to repent his rashness his strongholds were difficult of capture but he found it prudent to become a feudatory and to send his best men to follow a new master After this success Runjeet Singh went to bathe in the holy pool of Turrun Tarun and meeting with Futteh Singh Alhoowaleea he conceived a friendship for him as has been mentioned and went through a formal exchange of turbans symbolical of brotherhood During 1802 the allies took Amritsir from the widow of the last Bunghee leader of note, and of their joint spoil it fell to the share of the master of the other capital of the Sikh country In 1803 Sunsar Chund of Kototch, in prosecution of his schemes of aggrandizement, made two attempts to occupy portions of the fertile Dooab of Jalundhur but he was repulsed by Runjeet Singh and his confederate. In 1804 Sunsar Chund again quitted his hills, and captured Hosheearpoor and Bijwara, but Runjeet Singh s approach once more compelled him to retreat, and he soon afterwards became involved with he Goorkhas a new people in search of an

he received homage and presents from the Mahometans of Jhung and Saheewal and Mozuffer Khan of Mooltan successfully deprecated an attack by rich offerings. Runjeet Singh had felt his way and was satisfied he returned to Lahore celebrated the festival of the Holee in his capital and then went to bathe in the Ganges at Hurdwar or to observe personally the aspect of affairs to the eastward of the Punjab Towards the close of 1805 he made another western inroad and added weight to the fetters already imposed on the proprietor of Jhung but the approach of Holkar and Ameer Khan recalled first, Futteh Singh and afterwards himself to the proper city of the whole Sikh people. The danger seemed imminent, for a famed leader of the dominant Mahrattas was desirous of bringing down an Afghan host, and the English army exact in discipline, and representing a power of unknown views and resources had reached the neighborhood of Amritsir.*

A formal council was held by the Sikhs but a portion only of their leaders were present. The singleness of purpose the confident belief in the aid of God which had animated mechanics and shepherds to resist persecution and to triumph over Ahmed Shah no longer possessed the minds of their descendants born to comparative power and affluence and who like rude and ignorant men broken loose from all law gave the rein to their grosser passions Their ambition was personal and their desire was for worldly enjoyment The genuine

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* See *Elphinstone's Caubul* ii. 325. and *Murray's Runjeet Singh*, p. 56, 57

spirit of Sikhism had again sought the dwelling of the peasant to reproduce itself in another form, the rude system of mixed independence and confederacy, was unsuited to an extended dominion, it had served its ends of immediate agglomeration, and the "Misls" were in effect dissolved The mass of the people remained satisfied with their village freedom, to which taxation and inquisition were unknown, but the petty chiefs and their paid followers, to whom their faith was the mere expression of a conventional custom, were anxious for predatory licence, and for additions to their temporal power. Some were willing to join the English, others were ready to link their fortunes with the Mahrattas, and all had become jealous of Runjeet Singh, who alone was desirous of excluding the stranger invaders, as the great obstacles to his own ambition of founding a military monarchy which should ensure to the people the congenial occupation of conquest. In truth, Runjeet Singh labored, with more or less of intelligent design, to give unity and coherence to diverse atoms and scattered elements, to mould the increasing Sikh nation into a well-ordered state, or commonwealth, as Govind had developed a sect into a people, and had given application and purpose to the general institutions of Nanuk *

Holkar retired, and Runjeet Singh, as has been mentioned, entered into a vague but friendly alliance with the British Government. Towards the close of the same year, he was invited to interfere in a quarrel

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* Malcolm (*Sketch*, p 106, 107) remarks on the want of unanimity among the Sikhs at the time of Lord Lake's expedition, Compare *Murray's Runjeet Singh*, p 57, 58.

between the chief of Naba and the raja of Putteeala, and it would be curious to trace whether the English authorities had first refused to mediate in the dispute in consequence of the repeated instructions to avoid all connection with powers beyond the Jumna. Runjeet Singh crossed the Sutlej and took Loodiana from the declining Mahometan family which had sought the protection of the adventurer George Thomas. The place was bestowed upon his uncle, Bhag Singh of Jeend and as both Jeswunt Singh of Naba, whom he had gone to aid and Sahib Singh of Putteeala, whom he had gone to coerce, were glad to be rid of his destructive arbitration he retired with the present of a piece of artillery and some treasure and went towards the hills of Kanggra partly that he might pay his superstitious devotions at the natural flames of Jowala Mookhee.*

At this time the unscrupulous ambition of Sunsar Chund of Kototch had brought him into fatal collision with the Goorkhas. That able chief might have given life to a confederacy against the common enemies of all the old mountain principalities who were already levy ing tribute in Gurhwal but Sunsar Chand in his desire for supremacy had reduced the chief of Kuhloor

* See *Murray's Runjeet Singh*, p 59, 60. The letter of Sir Charles Metcalfe to Government, of the 17th June, 1809, shows that Runjeet Singh was not strong enough at the time in question, 1806, to interfere, by open force, in the affairs of the Malwa Sikhs, and the letters of Sir David Ochterloney of 14th Feb and 7th March, 1809, and 30th July 1811 show that the English engagements of 1805, with the Putteeala and other chiefs were virtually at an end, so far as regarded the reciprocal benefits of alliance.

or Belaspoor, to the desperate expedient of throwing himself on the support of the Nepal commander Ummer Singh Thapa gladly advanced, and, notwithstanding the gallant resistance offered by the young chief of Nalagurh, Sunsar Chund's co-adjutor in his own aggressions, the Goorkha authority was introduced between the Sutlej and Jumna before the end of 1805, during which year Ummer Singh crossed the former river and laid siege to Kanggra At the period of Runjeet Singh's visit to Jowala Mookhee, Sunsar Chund was willing to obtain his aid, but, as the fort was strong and the sacrifices required considerable, he was induced to trust to his own resources, and no arrangement was then come to for the expulsion of the new enemy *

In 1807, Runjeet Singh first directed his attention to Kussoor, which was again rebellious, and the relative independence of which caused him disquietude, although its able chief, Nizamooddeen, had been dead for some time, nor was he, perhaps, without a feeling that the reduction of a large colony of Puthans, and the

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* Compare *Murray's Runjeet Singh*, p 60, and *Moorcroft's Travels*, i 127 &c

Sunsar Chund attributed his overthrow by the Goorkhas, to his dismissal of his old Rajpoot troops and employment of Afghans at the instigation of the fugitive Rohilla chief, Gholam Mahomed, who had sought an asylum with him

The Goorkhas crossed the Jumna to aid the chief of Nahun against his subjects, and they crossed the Sutlej to aid one Rajpoot prince against another—paths always open to new and united races References in public records show that the latter river was crossed in 1803 A D

annexation of the mythological rival of Lahore, would add to his own merit and importance. The place was invested by Runjeet Singh and by Jodh Singh Ramgurheea the son of his father's old ally Jussa the Carpenter Want of unity weakened the resistance of the then chief Kootubooddeen and at the end of a month he surrendered at discretion and received a tract of land on the opposite side of the Sutlej for his maintenance Runjeet Singh afterwards proceeded towards Mooltan and succeeded in capturing the walled town, but the citadel resisted such efforts as he was able to make, and he was perhaps glad that the payment of a sum of money enabled him to retire with credit he was nevertheless, unwilling to admit his failure and in the communications which he then held with the Nuwab of Buhawulpoor the ready improver of opportunities endeavored to impress that chief with the belief that a regard for him alone had caused the Afghan governor to be left in possession of his stronghold *

During the same year 1807 Runjeet Singh took into his employ a Khutree, named Mohkum Chund an able man who fully justified the confidence reposed in him With this new servant in his train he proceeded to interfere in the dissensions between the Raja of Putteeala and his intriguing wife which were as lucrative to the master of Lahore as they had before been to Holkar and Ameer Khan The Ranee wished to force from the weak husband a large assignment for the support of her infant son and she tempted Runjeet

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* Murray's *Runjeet Singh* p. 60, 61, and the manuscript memoirs of the Buhawulpoor family

Singh, by the offer of a necklace of diamonds and a piece of brass ordnance, to espouse her cause. He crossed the Sutlej, and decreed to the boy a maintenance of 50,000 rupees per annum. He then attacked Nurayengurh, between Ambala and the hills, and held by a family of Rajpoots, but he only secured it after a repulse and a heavy loss. Tara Singh, the old chief of the Dullehwala confederacy, who was with the Lahore force on this occasion, died before Nurayengurh, and Runjeet Singh hastened back to secure his possessions in the Julundhur Dooab The widow of the aged leader equalled the sister of the Raja of Putteeala in spirit, and she is described to have girded up her garments and to have fought, sword in hand, on the battered walls of the fort of Rahoon *

In the beginning of 1808, various dlaces in the Upper Punjab were taken from their independent Sikh proprietors, and brought under the direct management of the new kingdom of Lahore, and Mohkum Chund was at the same time employed in effecting a settlement of the territories which had been seized on the left bank of the Sutlej But Runjeet Singh's systematic aggressions had begun to excite fear in the minds of the Sikhs of Sirhind, and a formal deputation, consisting of the chiefs of Jeend and Kythul, and the Deewan, or minister of Putteeala, proceeded to Delhi, in March 1808, to ask for British protection The communications of the English Government with the chiefs of the Cis-Sutlej

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* Compare *Murray's Runjeet Singh*, p 61, 63 The gun obtained by Runjeet Singh from Putteeala, on this occasion, was named Kuree Khan, and was captured by the English, during the campaign of 1845-46

states had not been altogether broken off and the Governor General had at this time assured the Mahometan Khan of Koonjpoora, near Kurnal * that he need be under no apprehensions with regard to his hereditary possessions while the petty Sikh chief of Seekree had performed some services which were deemed worthy of a pension.† But the deputies of the collective states could obtain no positive assurances from the British authorities at Delhi although they were led to hope that, in the hour of need they would not be deserted. This was scarcely sufficient to save them from loss and perhaps from ruin, and as Runjeet Singh had sent messengers to calm their apprehensions, and to urge them to join his camp they left Delhi for the purpose of making their own terms with the acknowledged Raja of Lahore ‡

The Governor General of 1805 who dissolved or deprecated treaties with princes beyond the Jumna and declared that river to be the limit of British dominion had no personal knowledge of the hopes and fears with which the invasions of Shah Zuman agitated the minds of men for the period of three or four years and had the Sikhs of Sirhind sought protection from Lord Cornwallis they would doubtless have received a decisive answer in the negative. But the reply of encouragement given in the beginning of 1808 was prompted by renewed danger and the belief that the

* In a document, dated 18th January 1808.

† Mr Cl rk of Ambala to the agent at Delhi, 19th May 1837

‡ See *Murray's Runjeet Singh*, p 64 65

French, the Turkish, and the Persian emperors meditated the subjugation of India, led another new Governor-General to seek alliances, not only beyond the Jumna, but beyond the Indus.* The designs or the desires of Napoleon appeared to render a defensive alliance with the Afghans and with the Sikhs imperative, Mr Elphinstone was deputed to the court of Shah Shooja, and, in September 1808, Mr Metcalfe was sent on a mission to Runjeet Singh for the purpose of bringing about the desired confederation. The chiefs of Putteeala, Jeend, and Kythul, were also verbally assured that they had become dependent princes of the British Government, for the progress of Runjeet Singh seemed to render the interposition of some friendly states, between his military domination and the peaceful sway of the English, a measure of prudence and foresight.†

Mr. Metcalfe was received by Runjeet Singh at his newly conquered town of Kussoor, but the chief affected to consider himself as the head of the whole Sikh people, and to regard the possession of Lahore as giving him an additional claim to supremacy over Sirhind He did not, perhaps, see that a French invasion would be ruinous to *his* interests, he rather feared the colossal power on his borders, and he resented the intention of

* Mr Auber (*Rise and Progress of the British Power in India*, ii 461), notices the *triple* alliance which threatened Hindostan

† Government to Sir David Ochterloney, 14th Nov. 1808. Compare *Murray's Runjeet Singh*, p 65, 66

confining him to the Sutlej.* He suddenly broke off negotiations, and made his third inroad to the south of the Sutlej. He seized Fureedkot and Ambala, levied exactions in Malerh Kotla and Thunehsir and entered into a symbolical brotherhood or alliance with the Raja of Putteeala. The British envoy remonstrated against these virtual acts of hostility and he remained on the banks of the Sutlej until Runjeet Singh recrossed that river.†

The proceedings of the ruler of Lahore determined the Governor General if doubtful before to advance a detachment of troops to the Sutlej to support Mr Metcalfe in his negotiations and to effectually confine Runjeet Singh to the northward of that river.‡ Provision would also be thus made, it was said for possible warlike operations of a more extensive character and the British frontier would be covered by a confederacy of friendly chiefs instead of threatened by a hostile military government. A body of troops was accordingly moved across the Jumna in January 1809 under the command of Sir David Ochterloney. The general advanced, by way of Booreea and Putteeala, towards Loodiana: he was welcomed by all the Sirhind chiefs save Jodh Singh Kulseea the nominal head of the Krora Singheea confederacy but during his march he

* Moorcroft ascertained (*Travels* i 94) that Runjeet Singh had serious thoughts of appealing to the sword so unpalatable was English interference. The well known Fukeer Uzeezooddeen was one of the two persons who dissuaded him from war.

† Murray's *Runjeet Singh*, p. 66.

‡ Government to Sir David Ochterloney 14th Nov and 29th Dec., 1808.

was not without apprehensions that Runjeet Singh might openly break with his government, and, after an interview with certain agents whom that chief had sent to him with the view of opening a double negotiation, he made a detour and a halt, in order to be near his supplies should hostilities take place.*

Runjeet Singh was somewhat discomposed by the near presence of a British force, but he continued to evade compliance with the propositions of the envoy, and he complained that Mr Metcalfe was needlessly reserved about his acquisitions on the south banks of the Sutlej, with regard to which the Government had only declared that the restoration of his last conquests, and the absolute withdrawal of his troops to the northward of the river, must form the indispensable basis of further negotiations † Affairs were in this way when intelligence from Europe induced the Governor General to believe that Napoleon must abandon his designs upon India, or at least so far suspend them as to render

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* Sir David Ochterloney to Government, 20th Jan, and 4th, 9th, and 14th Feb, 1809, with Government to Sir David Ochterloney, of 13th March, 1809 Government by no means approved of what Sir David Ochterloney had done, and he, feeling aggrieved, virtually tendered his resignation of his command (Sir David Ochterloney to Government, 19th April, 1809)

† Sir D Ochterloney to Government, 14th Feb 1809, and Government to Sir D Ochterloney, 30th July, 1809 Lieut-Colonel Lawrence (*Adventures in the Punjab*, p 131, note *g*) makes Sir Charles Metcalfe sufficiently communicative on this occasion with regard to other territories, for he is declared to have told the Muharaja that, by a compliance with the then demands of the English, he would ensure them neutrality with respect to encroachments elsewhere

defensive precautions unnecessary.* It was therefore made known that the object of the English Government had become limited to the security of the country south of the Sutlej from the incroachments of Runjeet Singh for that independent of the possible approach of a European enemy it was considered advisable on other grounds to afford protection to the southern Sikhs. Runjeet Singh must still nevertheless, withdraw his troops to the right bank of the Sutlej his last usurpations must also be restored but the restitution of his first conquests would not be insisted on, while, to remove all cause of suspicion the detachment under Sir David Ochterloney could fall back from Loodiana to Kurnal and take up its permanent position at the latter place.† But the British commander represented the advantage of keeping the force where it was, his Government assented to its detention, at least for a time and Loodiana thus continued uninterruptedly to form a station for British troops.‡

In the beginning of February 1809 Sir David Ochterloney had issued a proclamation declaring the Cis Sutlej states to be under British protection, and that any aggressions of the Chief of Lahore would be resisted with arms.§ Runjeet Singh then perceived that the British authorities were in earnest, and the fear struck him that the still independent leaders of the

* Government to Sir David Ochterloney 30th Jan., 1809.

† Government to Sir David Ochterloney 30th Jan., 6th Feb. and 15th March 1809.

‡ Sir David Ochterloney to Government, 6th May 1809. and Government to Sir David Ochterloney 13th June, 1809

§ See Appendix, No. VIII

Punjab might likewise tender their allegiance and have it accepted. All chance of empire would thus be lost, and he prudently made up his mind without further delay. He withdrew his troops as required, he relinquished his last acquisitions, and at Amritsir, on the 25th April 1809, the now single Chief of Lahore signed a treaty which left him the master of the tracts he had originally occupied to the south of the Sutlej, but confined his ambition for the future to the north and westward of that river.*

The Sikh, and the few included Hindoo and Mahometan chiefs, between the Sutlej and Jumna, having been taken under British protection, it became necessary to define the terms on which they were secured from foreign danger Sir David Ochterloney observed,† that when the chiefs first sought protection, their jealousy of the English would have yielded to their fears of Runjeet Singh, and they would have agreed to any conditions proposed, including a regular tribute. But their first overtures had been rejected, and the mission to Lahore had taught them to regard *their* defence as a secondary object, and to think that *English* apprehensions of remote foreigners had saved *them* from the arbiter of the Punjab. Protection, indeed, had become no longer a matter of choice, they must have accepted it, or they would have been treated as enemies.‡

* See the treaty itself, Appendix, No IX Compare *Murray's Runjeet Singh*, p 67, 68

† Sir David Ochterloney to Government, 17th March, 1809

‡ See also Government to Resident at Delhi, 26th Dec 1808 Baron Hugel (*Travels* p 279) likewise attributes the interference of the English, in part at least, to selfishness, but

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Wherefore, continued Sir David the chiefs expected that the protection would be gratuitous. The Government, on its part was inclined to be liberal to its new dependents and finally a proclamation was issued on the 3rd May 1809 guaranteeing the chiefs of "Sirhind and Malwa" against the power of Runjeet Singh leaving them absolute in their own territories exempting them from tribute, but requiring assistance in time of war and making some minor provisions which need not be recapitulated *

No sooner were the chiefs relieved of their fears of Runjeet Singh than the more turbulent began to prey upon one another or upon their weaker neighbors and although the Governor General had not wished them to consider themselves as in absolute subjection to the British power † Mr Metcalfe pointed out ‡ that it was necessary to declare the chiefs to be protected singly against one another as well as collectively against Runjeet Singh for if such a degree of security were not guaranteed the oppressed would necessarily have recourse to the only other person who could use coercion with effect, viz. to the Raja of Lahore. The justness of these views was admitted and on the 22d August 1811 a second proclamation was issued

with him the motive was the petty desire of benefiting by escheats, which the dissipated character of the chiefs was likely to render speedy and numerous! This appetite for morsels of territory however really arose at a subsequent date, and did not move the English in 1809.

* Appendix No. X.

† Government to Sir David Ochterloney 10th April, 1809.

‡ Mr Metcalfe to Government, 17th June, 1809.

warning the chiefs against attempts at usurpation, and reassuring them of independence and of protection against Runjeet Singh.* Nevertheless, encroachments did not at once cease, and the Jodh Singh Kulseea, who avoided giving in his adhesion to the British Government on the advance of Sir David Ochterloney, required to have troops sent against him in 1818, to compel the surrender of tracts which he had forcibly seized †

The history of the southern or Malwa Sikhs need not be continued, although it presents many points of interest to the general reader, as well as to the student and to those concerned in the administration of India The British functionaries soon became involved in intricate questions about interference between equal chiefs, and between chiefs and their confederates or dependents, they labored to reconcile the Hindoo laws of inheritance with the varied customs of different races, and with the alleged family usages of peasants suddenly become princes They had to decide on questions of escheat, and being strongly impressed with the superiority

* See the proclamation, Appendix, No XI

† Resident at Delhi to Agent at Ambala, 27th Oct 1818, mulcting the chief in the military expenses incurred, 65,000 rupees The head of the family, Jodh Singh, had recently returned with Runjeet Singh's army from the capture of Mooltan, and he was always treated with consideration by the Muharaja, and, bearing in mind the different views taken by dependent Sikhs and governing English, of rights of succession, he had fair grounds of dissatisfaction He claimed to be the head of the "Krora Singheea" Misl, and to be the heir of all childless feudatories The British Government, however, made itself the valid or efficient head of the confederacy

of British municipal rule and with the undoubted claim of the paramount to some benefit from the protection it afforded they strove to prove that collateral heirs had a limited right only and that exemption from tribute necessarily implied an enlarged liability to confiscation They had to define the common boundary of the Sikh states and of British rule and they were prone to show after the manner of Runjeet Singh that the pre ent possession of a principal town gave a right to all the villages which had ever been attached to it as the seat of a local authority and that all waste lands belonged to the supreme power although the dependent might have last possessed them in sovereignty and intermediately brought them under the plough They had to exercise a paramount municipal control and in the surrender of criminals and in the demand for compensation fo property stolen from British subjects the original arbitrary nature of the decisions enforced has not yet been entirely replaced by rules of reciprocity But the government of a large empire will always be open to obloquy and liable to misconception from the acts of officious and ill judging servants who think that they best serve the complicated interests of their own rulers by lessening the material power of others, and that any advantage they may seem to have gained for the state they obey will surely promote their own objects Nor in such matters are servants alone to blame and the whole system of internal government in India requires to be remodelled and made the subject of a legislation at once wise, considerate, and comprehensive. In the Sikh states ignorance has been the main cause of mistakes and heart burnings and in 1818 Sir David Och

terloney frankly owned to the Marquis of Hastings,* that his proclamation of 1809 had been based on an erroneous idea He thought that a few great chiefs only existed between the Sutlej and Jumna, and that on them would devolve the maintenance of order, whereas he found that the dissolution of the "Misls," faulty as was their formation, had almost thrown the Sikhs back upon the individual independence of the times of Ahmed Shah Both in considering the relation of the chiefs to one another, and their relation collectively to the British Government, too little regard was perhaps had to the peculiar circumstances of the Sikh people They were in a state of progression among races as barbarous as themselves, when suddenly the colossal power of England arrested them, and required the exercise of political moderation and the practice of a just morality from men ignorant alike of despotic control and of regulated freedom †

* In a private communication, dated 17th May, 1818

† In the Sikh states on either side of the Sutlej, the British Government was long fortunate in being represented by such men as Capt Murray and Mr Clerk, Sir David Ochterloney and Lieut -Colonel Wade—so different from one another, and yet so useful to one common purpose of good for the English power These men, by their personal character or influence, added to the general reputation of their countrymen, and they gave adaptation and flexibility to the rigid unsympathising nature of a foreign and civilised supremacy Sir David Ochterloney will long live in the memory of the people of Northern India as one of the greatest of the conquering English chiefs, and he was among the very last of the British leaders who endeared himself, both to the army which followed him and to the princes who bowed before the colossal power of his race

Nevertheless, the best of subordinate authorities, immersed in details and occupied with local affairs, are liable to be biassed by views which promise immediate and special advantage They can seldom be more than upright or dexterous administrators, and they can still more rarely be men whose minds have been enlarged by study and reflection as well as by actual experience of the world. Thus the ablest but too often resemble merely the practical man of the moment while the supreme authority especially when absent from his councillors and intent upon some great undertaking is of necessity dependent mainly upon the local representatives of the Government, whose notions must *inevitably* be partial or one sided, *for good indeed*, as well as for evil The author has thus, even during his short service seen many reasons to be thankful that there is a remote deliberative or corrective body which can survey things through an atmosphere cleared of mists, and which can judge of measures with reference both to the universal principles of justice and statesmanship and to their particular bearing on the English supremacy in India, which should be characterised by certainty and consistency of operation, and tempered by a spirit of forbearance and adaptation.

CHAPTER VI.

FROM THE SUPREMACY OF RUNJEET SINGH TO THE REDUCTION OF MOOLTAN, CASHMEER, AND PESHAWUR.

1809—1823-24.

Mutual distrust of Runjeet Singh and the English gradually removed.—Runjeet Singh and the Goorkhas.—Runjeet Singh and the Ex-kings of Caubul.—Runjeet Singh and Futteh Khan, the Caubul Vuzeer.—Runjeet Singh and Shah Shooja each fail against Cashmeer.—Futteh Khan put to death—Runjeet Singh captures Mooltan, overruns Peshawur, occupies Cashmeer, and annexes the "Derajat" of the Indus to his dominions—The Afghans defeated, and Peshawur brought regularly under tribute.—Death of Mahomed Azeem Khan of Caubul, and of Sunsar Chund of Kototch—Runjeet Singh's power consolidated—Shah Shooja's expedition of 1818-21*—Appa Sahib of Nagpoor—The traveller Moorcroft—Runjeet Singh's Government.—The Sikh Army—The Sikhs and other military tribes—French officers—Runjeet Singh's family—Runjeet Singh's failings and Sikh vices—Runjeet Singh's personal favorites and trusted servants.*

A TREATY of peace and friendship was thus formed between Runjeet Singh and the English Government but confidence is a plant of slow growth, and doubt and suspicion are not always removed by formal protestations. While arrangements were pending with the

Maharaja, the British authorities were assured that he had made propositions to Sindhia * agents from Gwalior from Holkar and from Ameer Khan † continued to show themselves *for years at Lahore, and their masters* long dwelt on the hope that the tribes of the Punjab and of the Deccan might yet be united against the stranger conquerors. It was further believed by the English rulers, that Runjeet Singh was anxiously trying to induce the Sikhs of Sirhind to throw off their allegiance and to join him and Holkar against their protectors.‡ Other special instances might also be quoted and Sir David Ochterloney even thought it prudent to lay in supplies and to throw up defensive lines at Loodiana.§ Runjeet Singh had likewise *his* suspicions, but they were necessarily expressed in ambiguous terms, and were rather to be deduced from his acts and correspondence and from a consideration of his position than to be looked for in overt statements or remonstrances. By degrees the apprehensions of the two governments mutually vanished and while Runjeet Singh felt he could freely exercise his ambition beyond the Sutlej the English were persuaded he would not embroil himself with its restless allies in the south, so long as he had occupation elsewhere In 1811 presents were exchanged between the Governor Gene-

* Resident at Delhi to Sir David Ochterloney 28th June 1809.

† Sir D Ochterloney to Government, 15th Oct., 1809 5th 6th, and 7th Dec. 1809; and 5th and 30th Jan and 22nd Aug 1810.

‡ Sir D Ochterloney to Government, 5th Jan. 1810

§ Sir D Ochterloney to Government, 31st Dec 1809, and 7th Sept 1810.

ral and the Maharaja,* and during the following year Sir David Ochterloney became his guest at the marriage of his son, Khurruk Singh,† and from that period until within a year of the late war, the rumors of a Sikh invasion served to amuse the idle and to alarm the credulous, without causing uneasiness to the British viceroy

On the departure of Mr Metcalfe, the first care of Runjeet Singh was to strengthen both his frontier post of Filor opposite Loodiana, and Govindgurh the citadel of Amritsir, which he had begun to build as soon as he got possession of the religious capital of his people ‡ He was invited, almost at the same time, by Sunsar Chund, of Kototch, to aid in resisting the Goorkhas, who were still pressing their long continued siege of Kanggra, and who had effectually dispelled the Rajpoot prince's dreams of a supremacy reaching from the Jumna to the Jehlum The stronghold was offered to the Sikh ruler as the price of his assistance, but Sunsar Chund hoped, in the meantime, to gain admittance himself, by showing to the Goorkhas the futility of resisting Runjeet Singh, and by promising to surrender the fort to the Nepal commander, if allowed to withdraw his family The Maharaja saw through the schemes of Sunsar Chund, and he made the son of his ally a prisoner, while he dexterously cajoled the

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* A carriage was at this time sent to Lahore See, further, Resident of Delhi to Sir D Ochterloney, 25th Feb 1811, and Sir D Ochterloney to Government, 15th Nov 1811

† Sir D Ochterloney to Government, 18th July, 1811, and 23d January, 1812

‡ Compare *Murray's Runjeet Singh*, p 76

Kathmandoo general Ummer Singh Thapa, who proposed a joint warfare against the mountaineers and to take or receive in the meantime the fort of Kanggra as part of the *Goorkha* share of the general spoil He got possession of the place by suddenly demanding admittance as the expected relief. Sunsar Chund was foiled and Ummer Singh retreated across the Sutlej, loudly exclaiming that he had been grossly duped * The active Nepalese commander soon put down some disorders which had arisen in his rear but the disgrace of his failure before Kanggra rankled in his mind and he made preparations for another expedition against it. He proposed to Sir David Ochterloney a joint march to the Indus and a separate appropriation of the plains and the hills † and Runjeet Singh ignorant alike of English moderation and of international law became apprehensive lest the allies of Nepal should be glad of a pretext for coercing one who had so unwillingly acceded to their limitation of his ambition He made known that *he* was desirous of meeting Ummer Singh Thapa on his own ground and the reply of the Governor General that he might not only himself cross the Sutlej to chastise the invading Goorkhas in the hills, but that if they descended into the plains of Sirhind he would receive English assistance, gave him another proof that the river of the treaty was really to be an impassable

* Murray's *Runjeet Singh* p 76, 77 The Maharaja told Captain Wade that the Goorkhas wanted to share Cashmeer with him but that he thought it best to keep them out of the Punjab altogether (Capt Wade to Government, 25th May 1831)

† Sir D Ochterloney to Government 16th, and 30th December 1809

barrier. He had got the assurance he wanted, and he talked no more of carrying his horsemen into mountain recesses.* But Ummer Singh long brooded over his reverse, and tried in various ways to induce the British authorities to join him in assailing the Punjab The treaty with Nepal, he would say, made all strangers the mutual friends or enemies of the two governments, and Runjeet Singh had wantonly attacked the Goorkha possessions in Kototch. Besides, he would argue, to advance is the safest policy, and what could have brought the English to the Sutlej but the intention of going beyond it? † The war of 1814 followed, and the English became the neighbors of the Sikhs in the hills as well as in the plains, and the Goorkhas, instead of grasping Cashmeer, trembled for their homes in Kathmandoo. Runjeet Singh was not then asked to give his assistance, but Sunsar Chund was directly called upon by the English representative to attack the Goorkhas and their allies,—a hasty requisition, which produced a remonstrance from the Muharaja, and an admission, on the part of Sir David Ochterloney, that his supremacy was not questioned, while the experienced Hindoo chief had forborne to commit himself with either state, by promising much and doing little ‡

* Sir D Ochtherloney to Government, 12th September, 1811, and Government to Sir D Ochterloney, 4th October, and 22nd November, 1811

† Sir D Ochterloney to Government, 20th December, 1813

‡ Government to Sir David Ochterloney, 1st and 20th October, 1814. Resident at Delhi to Sir D Ochterloney, 11th October, 1814, and Sir David's letter to Runjeet Singh, dated 29th November, 1814

Runjeet Singh felt secure on the Upper Sutlej but a new danger assailed him in the beginning of 1810 and again set him to work to dive to the bottom of British counsels. Mr Elphinstone had scarcely concluded a treaty with Shah Shooja against the Persians and French before that prince was driven out of his kingdom by the brother whom he had himself supplanted and who had placed his affairs in the hands of the able minister Futteh Khan The Muharaja was at Vuzeerabad sequestering that place from the family of a deceased Sikh chief when he heard of Shah Shooja s progress to the eastward with vague hopes of procuring assistance from one friendly power or another Runjeet Singh remembered the use he had himself made of Shah Zuman s grant of Lahore, he feared the whole Punjab might similarly be surrendered to the English in return for a few battalions and he desired to keep a representative of imperial power within his own grasp *

During the war of 814 Sir David Ochterlone\ sometimes almost despaired of success and amid his vexation he once at least recorded his opinion that the Sepoys of the Indian army were unequal to such mount in warfare as was being waged. (Sir D Ochterloney to Government, 22d December 1814) The most active and useful ally of the Engli h during the war was Raja Ramsurrun of Hindoor (or Nalagurh), the descendant of the Hurree Chund lain by Gooroo Govind, and who was himself the ready coadjutor of Sunsar Chund in many aggressions upon others as well as in resisting the Goorkhas The venerable chief was still alive in 1846, and he continued to talk with admiration of Sir David Ochterloney and his "eighteen pounders, and to expati te upon the aid he himself rendered in dragging them up the steeps of the Himalayas.

Sir D Ochterloney to Government, 10th and 30th December 1809.

He amused the ex-king with the offer of co-operation in the recovery of Mooltan and Cashmeer and he said he would himself proceed to meet the Shah to save him further journeying towards Hindostan * They saw one another at Saheewal, but no determinate arrangement was come to, for some prospects of success dawned upon the Shah, and he felt reason to distrust Runjeet Singh's sincerity † The conferences were broken off, but the Muharaja hastened, while there was yet an appearance of union, to demand the surrender of Mooltan for himself in the name of the king The great gun called "Zem Zem," or the "Bunghee Tope," was brought from Lahore to batter the walls of the citadel, but all his efforts were in vain, and he retired, foiled, in the month of April with no more than 180 000 rupees to sooth his mortified vanity The governor, Mozuffer Khan, was by this time in correspondence with the British Viceroy in Calcutta and Runjeet Singh feared that a tender of allegiance might not only be made but accepted ‡ He therefore proposed to Sir David Ochterloney that the two "allied powers" should march against Mooltan and divide the conquest equally § It

* Sir D Ochterloney to Government, 7th, 10th, 17th, and 30th Dec, 1809, and 30th Jan 1810

† Shah Shooja's *Autobiography*, chap xxii, published in the Calcutta Monthly Journal for 1839 The original was undoubtedly revised, if not really written, by the Shah

‡ Sir D Ochterloney to Government, 29th March, and 23rd May, 1810 In the latter it is stated that 250,000 rupees were paid, and the sum of 180,000 is given on Capt Murray's authority (*Life of Runjeet Singh*, p 81)

§ Sir D Ochterloney to Government, 23rd July, and 13th Aug, 1810

was surmised that he wanted the siege train of the English but he may likewise have wished to know whether the Sutlej was to be as good a boundary in the south as in the north He was told reprovingly that the English committed aggressions upon no one, but otherwise the tenor of the correspondence was such as to lead him to believe that he would not be interfered with in his designs upon Mooltan.*

Shah Shooja proceeded towards Attok after his inter view with Runjeet Singh and having procured some aid from the rebellious brother of the Governor of Cash meer he crossed the Indus and in March 1810 made himself master of Peshawur He retained possession of the place for about six months when he was com pelled to retreat southward by the Vuzeer's brother, Mahomed Azeem Khan He made an attempt to gain over the governor of Mooltan but he was refused ad mittance within its walls and was barely treated with courtesy even when he encamped a few miles distant. He again moved northward and as the enemies of Mehmood were numerous he succeeded in mastering Peshawur a second time, after two actions one a re verse and the other victory But those who had aided him became suspicious that he was in secret league with Futteh Khan the Vuzeer or like Runjeet Singh they wished to possess his person and in the course of 1812 he was seized in Peshawur by Jehan Dad Khan governor of Attok and removed first, to that fort, and

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* Sir D Ochterloney to Government 29th March and 17th Sept., 1810, and Government to Sir D Ochterloney 25th Sept., 1840. Compare Murray's *Runjeet Singh*, p. 80, 81.

afterwards to Cashmeer, where he remained as a prisoner for more than twelve months *

After the failure before Mooltan, Runjeet Singh and his minister, Mohkum Chund, were employed in bringing more fully under subjection various Sikh and Mahometan chiefs in the plains, and also the hill Rajas of Bhimbur, Rajaoree, and other places. In the month of February, 1811, the Muharaja had reached the salt mines between the Jehlum and Indus, and hearing that Shah Mehmood had crossed the latter river, he moved in force to Rawil Pindee, and sent to ascertain his intentions The Shah had already deputed agents to state that his object was to punish or overawe the Governor of Cashmeer, who had sided with his brother, Shah Shooja, then in the neighbourhood of Mooltan, and the two princes being satisfied, they had a meeting of ceremony before the Muharaja returned to Lahore, to renew his confiscation of lands held by the many petty chiefs who had achieved independence or sovereignty while the country was without a general controlling power, but who now fell unresistingly before the systematic activity of the young Muharaja †

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* Sir D. Ochterloney to Government, 10th Jan and 26th Feb 1810, and 27th April, 1812 *Shah Shooja's Autobiography*, chap xxiii — xxv in the Calcutta Monthly Journal for 1839, and *Murray's Runjeet Singh*, p 79 87 92

Shah Shooja's second appearance before Mooltan in 1810-11, is given mainly on Captain Murray's authority, and the attempt is not mentioned in the Shah's memoirs, although it is admitted that he went into the Derajat of the Indus, *i e* to Dera Ismaeel Khan, &c

† Murray's *Runjeet Singh*, p 83 &c The principal of the chiefs

In the year 1811 the blind Shah Zuman crossed the Punjab and was visited by Runjeet Singh He took up his residence in Lahore for a time and deputed his son Eunus to Loodiana, where he was received with attention by Sir David Ochterloney but as the prince perceived that he was not a welcome guest, his father quitted Runjeet Singh s city and became a wanderer for a time in Central Asia.* In the following year the families of the two ex kings took up their abode at Lahore, and as the Muharaja was preparing to bring the hill chiefs south of Cashmeer under his power, with a view to the reduction of the valley itself and as he always endeavored to make success more complete or more easy by appearing to labor in the cause of others he professed to the wife of Shah Shooja that he would release her husband and replace Cashmeer under the Shah s sway but he hoped the gratitude of the distressed lady would make the great diamond Koh i noor the reward of his chivalrous labors when they should be crowned with success. His principal object

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whose territories were usurped, was Boodh Singh, of the Singh pooreea or Feizoolapoorea Misl See also Sir D Ochterloney to Government, 15th Oct., 1811

Murray's *Runjeet Singh*, p 87 The visit of the prince was considered very embarrassing with reference to Runjeet Singh for Shah Shooja might follow and he was one who claimed British aid under the treaty of 1809 It was regretted that the "obligations of political necessity should supersede the dictates of compassion " it was argued that the treaty referred to defence against the French, and not against a brother and the lo al hearted Sir David Ochterloney was chidden for the reception he gave to the distressed Shahrada (Government to Sir D Ochterloney 19th Jan., 1811 and the correspondence generally of Dec 1810, and Jan. 1811)

was doubtless the possession of the Shah's person, and when, after his preliminary successes against the hill chiefs, including the capture of Jummoo by his newly married son, Khurruk Singh, he heard, towards the end of 1812, that Futteh Khan, the Caubul Vuzeer, had crossed the Indus with the design of marching against Cashmeer, he sought an interview with him, and said he would assist in bringing to punishment both the rebel, who detained the king's brother, and likewise the Governor of Mooltan, who had refused obedience to Mehmood. Futteh Khan had been equally desirous of an interview, for he felt that he could not take Cashmeer if opposed by Runjeet Singh, and he readily promised anything to facilitate his immediate object The Muharaja and the Vuzeer each hoped to use the other as a tool, yet the success of neither was complete Cashmeer was occupied in February 1813, but Futteh Khan outstripped the Sikhs under Mohkum Chund, and he maintained that as he alone had achieved the conquest, the Muharaja could not share in the spoils. The only advantage which accrued to Runjeet Singh was the possession of Shah Shooja's person, for the ill-fated king was allowed by Futteh Khan to go whither he pleased, and he preferred joining the Sikh army, which he accompanied to Lahore, to becoming virtually a prisoner * But the Muharaja's expedients did not entirely fail him, and as the rebel governor of Attok was alarmed by the success of Shah Mehmood's party in Cashmeer, he was easily persuaded to yield the fort

* Murray's *Runjeet Singh*, p. 92 95, Sir David Ochterloney to Government, 4th March, 1813, and Shah Shooja's *Autobiography*, chap xxv

to Runjeet Singh This unlooked for stroke incensed Futteh Khan, who accused the Muharaja of barefaced treachery and endeavored further to intimidate him by pretending to make overtures to Shah Shooja, but the Muharaja felt confident of his strength and a battle was fought on the 13th July 1813 near Attok in which the Caubul Vuzeer and his brother Dost Mahomed Khan were defeated by Mohkum Chund and the Sikhs.*

Runjeet Singh was equally desirous of detaining Shah Shooja in Lahore and of securing the great diamond which had adorned the throne of the Moghuls. The king evaded a compliance with all demands for a time and rejected even the actual offer of moderate sums of money but at last the Muharaja visited the Shah in person mutual friendship was declared an exchange of turbans took place the diamond was surrendered and the King received the assignment of a jagheer in the Punjab for his maintenance, and a promise of aid in recovering Caubul † Runjeet Singh then moved towards the Indus to watch the proceedings of Futteh Khan who was gradually consolidating the power of Mehmood and he required Shah Shooja to

* Murray's *Runjeet Singh*, p. 95 100 Sir D Ochterloney to Government, 1st July 1813.

† Murray's *Runjeet Singh*, p 96. &c. Shah Shooja's *Autobiography* chap xxv Sir D Ochterloney to Government 16th and 23rd April 1813, and to the Resident at Delhi 15th Oct., 1813 The Shah's own account of the methods practised to get possession of the diamond, is more favorable than Capt. Murray's to Runjeet Singh The Shah wanted a jagheer of 100 000 rupees, and one of 50,000 was assigned to him but effect to the assignment was never given, nor perhaps expected.

join him, perhaps with some design of making an attempt on Cashmeer, but Futteh Khan was likewise watchful, the season was advanced, and the Muharaja suddenly returned Shah Shooja followed slowly, and on the way he was plundered of many valuables, by ordinary robbers, as the Sikhs said, but by the Sikhs themselves, as the Shah believed. The inferior agents of Runjeet Singh may not have been very scrupulous, but the Shah had traitors in his own household, and the high officer who had been sent to conduct Mr Elphinstone to Peshawur, embezzled much of the Shah's property when misfortune overtook him This Meer Abool Hussun had originally informed the Sikh chief of the safety of the Koh-i-noor and other valuables, he plotted, when in Lahore, to make it appear the king was in league with the governor of Cashmeer, and he finally threw difficulties in the way of the escape of his master's family from the Sikh capital The flight of the Begum's to Loodiana was at last effected in December 1814, for Shah Shooja perceived the design of the Muharaja to detain him a prisoner, and to make use of his name for purposes of his own A few months afterwards the Shah himself escaped to the hills, he was joined by some Sikhs discontented with Runjeet Singh, and he was aided by the chief of Kishtwar in an attack upon Cashmeer He penetrated into the valley, but he had to retreat, and, after residing for some time longer with his simple, but zealous, mountain host, he marched through Kooloo, crossed the Sutlej, and joined his family at Loodiana in September, 1816 * His presence

* Murray's *Runjeet Singh*, p. 102, 103, Shah Shooja's *Autobiography*, chaps xxv, xxvi

on the frontier was regarded as embarrassing by the British Government, which desired that he should be urged to retire to Kurnal or Seharunpoor and Sir David Ochterloney was further discretionally authorized to tell Runjeet Singh that the ex king of Caubul was not a welcome guest within the limits of Hindostan. Nevertheless the annual sum of 18,000 rupees which had been assigned for the support of his family was raised to 50,000 on his arrival, and personally he was treated with becoming respect and consideration.*

Shah Shooja thus slipped from the hands of the Mu haraja and no use could be made of his name in further attempts upon Cashmeer but Runjeet Singh continued as anxious as ever to obtain possession of the valley although the governor had in the mean time, put him self in communication with the English.† The chiefs south of the Peer Punjal range having been brought under subjection military operations were commenced towards the middle of the year 1814. Sickness de tained the experienced Mohkum Chund at the capital, but he warned the Muharaja of the difficulties which would beset him as soon as the rains set in and he al most urged the postponment of the expedition. But the necessary arrangements had been completed and the approach was made in two columns. The more ad vanced division surmounted the lofty barrier, a detach

* Government to Sir D Ochterloney 2nd and 20th Aug., 1815 and 14th, 21st and 28th Sept., 1816 The Wuffa Begum had before been told that the Shah's family had no claims to British protection or intervention (Government to Resident at Delhi, 19th Dec., 1812 and 1st July 1813.)

† Government to Sir D Ochterloney 29th Oct and 23rd Nov., 1813

ment of the Afghan force was repulsed, and the town of Soopein was attacked , but the assault failed, and the Sikhs retired to the mountain passes. Mahomed Azeem Khan, the governor, then fell on the main body of Runjeet Singh, which had been long in view on the skirts of the valley, and compelled the Muharaja to retreat with precipitation. The rainy season had fairly set in, the army became disorganised, a brave chief, Mit'h Singh Behraneea, was slain, and Runjeet Singh reached his capital almost alone about the middle of August. The advanced detachment was spared by Mahomed Azeem Khan, out of regard, he said, for Mohkum Chund, the grandfather of its commander, and as doubtless the aspiring brother of the Vuzeer Futteh Khan had views of his own amid the struggles then going on for power, he may have thought it prudent to improve every opportunity to the advantage of his own reputation *

The efforts made during the expedition to Cashmeer had been great, and the Muharaja took some time to reorganize his means Towards the middle of 1815, he sent detachments of troops to levy exactions around Mooltan, but he himself remained at Adeenanuggur, busy with internal arrangements, and perhaps intent upon the war then in progress between the British and the Nepalese, and which, for a period of six months, was scarcely worthy of the English name The end of the same year was employed in again reducing the

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* Murray's *Runjeet Singh*, p 104 108, and Sir D' Ochterlony to Government, 13th Aug , 1814 Deewan Mohkum Chund died soon after Runjeet Singh's return

Mahometan tribes south-east of Cashmeer who had thrown off their a giance during the retreat of the Sikhs. In the beginning of 1816 the refractory hill raja of Noorpoor sought poverty and an asylum in the British territories rather than resign his territories and accept a maintenance. The Mahometan chiefship of Jhung was next finally confiscated and Leia, a depen dency of Dera Ismaeel Khan was laid under contri bution Ootch on the Chenab the seat of families of Syeds was temporarily occupied by Futteh Singh Alhoowaleea, and the possessions of Jodh Singh Ram gurheea, lately deceased the son of Jussa the Car penter the confederate of the Muharaja s father were seized and annexed to the territories of the Lahore government. Sunsar Chund was honored and alarmed by a visit from his old ally and the year 1816 termi nated with the Muharaja s triumphant return to Amritsir *

The northern plains and lower hills of the Punjab had been fairly reduced to obedience and order and Runjeet Singh s territories were bounded on the south and west by the real or nominal dependencies of Caubul but the Muharaja s meditated attacks upon them were postponed for a year by impaired health His first object was Mooltan and early in 1818 an army marched to attack it, under the nominal command of his son Khurruk Singh the titular reducer of Jummoo, To ask what were the Muharaja s reasons for attacking Mooltan would be futile he thought the Sikhs had as good a right as the Afghans to take what they could and the actual possessor of Mooltan had rather asserted

* Compare Murray's *Runjeet Singh*, p. 108, 111

his own independence than faithfully served the heirs of Ahmed Shah A large sum of money was demanded and refused In the course of February, the city was in possession of the Sikhs, but the fort held out until the beginning of June, and chance had then some share in its capture An Akalee, named Sadhoo Singh, went forth to do battle for the "Khalsa," and the very suddenness of the onset of his small band led to success The Sikhs, seeing the impression thus strangely made, arose together, carried the outwork, and found an easy entry through the breaches of a four months batter Mozuffer Khan, the governor, and two of his sons, were slain in the assault, and two others were made prisoners. A considerable booty fell to the share of the soldiery, but when the army reached Lahore, the Muharaja directed that the plunder should be restored. He may have felt some pride that his commands were not altogether unheeded, but he complained that they were not so productive as he had expected.*

During the same year, 1818, Futteh Khan, the Caubul Vuzeer, was put to death by Kamran, the son of

* The place fell on the 2nd June, 1818 See *Murray's Runjeet Singh*, p 114, &c The Muharaja told Mr Moorcroft that he had got very little of the booty he attempted to recover (Moorcroft, *Travels*, i. 102) Mahomed Mozuffer Khan, the governor, had held Mooltan from the time of the expulsion of the Sikhs of the Bunghee "Misl," in 1779 In 1807 he went on a pilgrimage to Mecca, and, although he returned in two years, he left the nominal control of affairs with his son Surufraz Khan On the last approach of Runjeet Singh, the old man refused, according to the Buhawulpoor annals, to send his family to the south of the Sutlej, as on other occasions of siege, but whether he did so in the confidence, or in the despair, of a successful resistance is not clear

Mahmood, the nominal ruler He had gone to Heerat to repel an attack of the Persians and he was accompanied by his brother Dost Mahomed who again had among his followers a Sikh chief Jaee Singh Atareewala, who had left the Punjab in displeasure Futteh Khan was successful and applause was freely bestowed upon his measures but he wished to place Heerat, then held by a member of Ahmed Shah s family within his own grasp and Dost Mahomed and his Sikh ally were em ployed to eject and despoil the Prince-Governor Dost Mahomed effected his purposes somewhat rudely the person of a royal lady was touched in the eagerness of the riflers to secure her jewels and Kamran made this affront offered to a sister a pretext for getting rid of the man who from the stay had become the tyrant of his family Futteh Khan was first blinded and then murdered and the crime saved Heerat indeed to Ahmed Shah s heir but deprived them for a time, and now per haps for ever of the rest of his possessions. Mahomed Azeem Khan hastened from Cashmeer which he left in charge of Jubbar Khan, another of the many brothers He at first thought of reinstating Shah Shooja, but he at last proclaimed Shah Ayoob as king and in a few months he was master of Peshawur and Ghuznee, of Caubul and Candahar This change of rulers favored if it did not justify the views of Runjeet Singh and towards the end of 1818, he crossed the Indus and entered Peshawur which was evacuated on his approach But it did not suit his purposes at the time, to endeavor to retain the district, he garrisoned Khyrabad which lies on the right bank of the river so as to command the passage for the future, and then retired, placing Jehan

Dad Khan, his old ally of Attok, in possession of Peshawur itself, to hold it as he could by his own means The Barukzaee governor, Yar Mahomed Khan, returned as soon as Runjeet Singh had gone, and the powerless Jehan Dad made no attempt to defend his gift *

Runjeet Singh's thoughts were now directed towards the annexation of Cashmeer, the garrison of which had been reduced by the withdrawal of some good troops by Mahomed Azeem Khan, but the proceedings of Dehsa Singh Mujeetheea and Sunsar Chund, for a moment changed his designs upon others into fears for himself. These chiefs were employed on an expedition in the hills to collect the tribute due to the Muharaja ; and the Raja of Kuhloor, who held territories on both sides of the Sutlej, ventured to resist the demands made Sunsar Chund rejoiced in this opportunity of revenge upon the friend of the Goorkhas , the river was crossed, but the British authorities were prompt, and a detachment of troops stood ready to oppose force to force Runjeet Singh directed the immediate recall of his men, and he desired Sirdar Dehsa Singh to go in person, and offer his apologies to the English agent † This alarm being over, the Muharaja proceeded with his preparations against Cashmeer, the troops occupying which, had, in

* Compare *Murray's Runjeet Singh*, p 117 120 , *Shah Shooja's Autobiography*, chap xxvii , and *Moonshee Mohan Lol's Life of Dost Mahomed*, i 99 104

Capt Murray (p 131) places the defection of Jaee Singh of Ataree, in the year 1822 , but compare also Mr Masson, *Travels*, iii 21 32, in support of the earlier date assigned

† Compare Murray's *Runjeet Singh* p 121, 122, and Moorcroft, *Travels*, i 110, for the duration of the Muharaja's displeasure with Dehsa Singh.

the meantime been reinforced by a detachment from Caubul The Brahmin Deewan Chund who had exercised the real command at Mooltan was placed in advance, the Prince Khurruk Singh headed a supporting column and Runjeet Singh himself remained behind with a reserve and for the purpose of expediting the transit of the various munitions of war The choice of the Sikh cavalry marched on foot over the mountains along with the infantry soldiers and they dragged with them a few light guns the passes were scaled on the 5th July 1819 but Jubbar Khan was found ready to receive them The Afghans repulsed the invaders and mastered two guns but they did not improve their success and the rallied Sikhs again attacked them and won an almost bloodless victory *

A few months after Cashmeer had been added to the Lahore dominions Runjeet Singh moved in person to the south of the Punjab and Dera Ghazee Khan on the Indus another dependency of Caubul, was seized by the victorious Sikhs The Nuwab of Buhawulpoor who held lands under Runjeet Singh in the fork of the Indus and Chenab had two years before made a successful attack on the Dooranee chief of the place, and it was now transferred to him in farm although his Cis-Sutlej possessions had virtually but not formally been taken under British protection in the year 1815 and he had thus become in a measure, independent of the Muharaja s power † During the year 1820 partial

* Compare Murray s *Runjeet Singh*, p. 122—124.

† Government to Superintendent Ambala, 15th Jan. 1815, and Sir D Ochterloney to Government, 23d July 1815 Compare Murray's *Runjeet Singh*, p. 124. The Buhawulpoor Memoirs

attempts were made to reduce the turbulent Mahometan tribes to the south-west of Cashmeer, and, in 1821, Runjeet Singh proceeded to complete his conquests on the Central Indus by the reduction of Dera Ismaeel Khan The strong fort of Munkehra, situated between the two westernmost rivers of the Punjab, was held out for a time by Hafiz Ahmed Khan, the father of the titular governor, who scarcely owned a nominal subjection to Caubul , but the promise of honorable terms induced him to surrender before the end of the year, and the country on the right bank of the Indus, including Dera Ismaeel Khan, was left to him as a feudatory of Lahore *

Mahomed Azeem had succeeded to the power of his brother, Futteh Khan, and, being desirous of keeping Runjeet Singh to the left bank of the Indus, he moved to Peshawur in the year 1822, accompanied by Jaee Singh, the fugitive Sikh chief, with the intention of attacking Khyrabad opposite Attok Other matters caused him hastily to retrace his steps, but his proceedings had brought the Muharaja to the westward who sent to Yar Mahomed Khan, the Governor of Peshawur, and demanded tribute This leader, who apprehended the designs of his brother, Mahomed Azeem Khan, almost as much as he dreaded Runjeet Singh, made an offering of some valuable horses † The

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state that Runjeet Singh came down the Sutlej as far as Pakputtun, with the view of seizing Buhawulpoor, but that a show of resistance having been made, and some presents offered, the Muharaja moved westward

* Compare Murray's *Runjeet Singh*, p 129, 130, and Sir A. Burnes' *Caubul*, p 92

† Compare Murray's *Runjeet Singh*, p 134—137

Muharaja was satisfied and withdrew perhaps the more readily as some differences had arisen with the British authorities regarding the right to a place named Whud nee, to the south of the Sutlej which had been transferred by Runjeet Singh to his intriguing and ambitious mother in law Sudda Kour in the year 1808 The lady was regarded by the English agents as being the independent representative of the interests of the Kuneia (or Ghunee) confederacy of Sikhs on *their* side of the river and therefore as having a right to their protection But Runjeet Singh had quarrelled with and imprisoned his mother in law and had taken possession of the fort of Whudnee. It was resolved to eject him by force, and a detachment of troops marched from Loodiana and restored the authority of the captive widow Runjeet Singh prudently made no attempt to resist the British agent, but he was not without apprehensions that his occupation of the place would be construed into a breach of the treaty and he busied himself with defensive preparations. A friendly letter from the superior authorities at Delhi relieved him of his fears and allowed him to prosecute his designs against Peshawur without further interruption *

* Compare Murray's *Runjeet Singh*, p 134, where the proceedings are given very briefly and scarcely with accuracy Capt. Murray's and C pt. Ross's letters to the Resident at Delhi, from Feb to Sept. 1822, give details, and other information is obtainable from the letters of Sir D Ochterloney to Capt Ross, dated 7th Nov 1821 and of the Governor General's Agent at Delhi to Capt. Murray, of 22nd June, and to Government of the 23rd Aug 1822 and from those of Government to the Governor General's Agent, 24th April, 13th July and 18th Oct., 1822 On

Mahomed Azeem Khan disapproved of the presentation of horses to Runjeet Singh by Yar Mahomed Khan, and he repaired to Peshawur in January 1823 Yar Mahomed fled into the Eusofzaee hills rather than meet his brother, and the province seemed lost to one branch of the numerous family, but the chief of the Sikhs was at hand, resolved to assert his equality of right or his superiority of power. The Indus was forded on the 13th March, the guns being carried across on elephants. The territory of the Khuttuks bordering the river was occupied, and at Akora the Muharaja received and pardoned the fugitive Jaee Singh Atareewala. A religious war had been preached, and twenty thousand men, of the Khuttuk and Eusofzaee tribes, had been assembled by their priests and devotees to fight for their faith against the unbelieving invaders. This body of men was posted on and around heights near Noshehra, but on the left bank of the Caubul river, while Mahomed Azeem Khan, distrustful of his influence over the independent militia, and of the fidelity of his brothers, occupied a position higher up on the right bank of the stream. Runjeet Singh detached a force to keep the Vuzeer in check, and crossed the river to attack the armed peasantry. The Sikh "Akalees" at once rushed upon the Mahometan "Ghazees," but Phoola Singh, the wild leader of the fanatics of Amritsir, was slain, and his horsemen made no impression on masses of footmen advantageously posted. The Afghans

this occasion the Akalee Phoola Singh is reported, by Capt Murray, to have offered to retake Whudnee single-handed, and Runjeet Singh to have commissioned him to embody a thousand of his brethern.

then exultingly advanced and threw the drilled infantry of the Lahore ruler into confusion. They were checked by the fire of the rallying battalions and by the play of the artillery drawn up on the opposite bank of the river and at length Runjeet Singh s personal exertions with his cavalry converted the check into a victory The brave and believing mountaineers reassembled after their rout, and next day they were willing to renew the fight under their "Peerzada, Mahomed Akber, but the Caubul Vuzeer had fled with precipitation, and they were without countenance or support. Peshawur was sacked and the country plundered up to the Khyber Pass but the hostile spirit of the population rendered the province of difficult retention and the prudent Muharaja gladly accepted Yar Mahomed s tender of submission Mahomed Azeem Khan died shortly afterwards and with him expired all show of unanimity among the bands of brothers who possessed the three capitals of Peshawur Caubul and Candahar while Shah Mehmood and his son Kamran exercised a precarious authority in Heerat, and Shah Ayoob who had been proclaimed titular monarch of Afghanistan remained a cipher in his chief city *

* Compare Murray's *Runjeet Singh*, p 137 &c. Moorcroft's *Travels* ii 333, 334. and Masson s *Journeys* iii 58—60 Runjeet Singh told Capt. Wade that, of his disciplined troops, his Goorkhas alone stood firm under the assault of the Mahometans. (Capt. Wade to Resident at Delhi, 3d April, 1839.)

The fanatic, Phoola Singh already referred to in the preceding note, was a man of some notoriety In 1809, he attacked Sir Charles Metcalfe's camp, and afterwards the party of a British officer employed in surveying the Cis Sutlej states. In 1814 15

Towards the end of the year 1823, Runjeet Singh marched to the south-west corner of his territories, to reduce refractory Mahometan Jagheerdars, and to create an impression of his power on the frontiers of Sindh,—to tribute from the Ameers of which country, he had already advanced some claims.* He likewise pretended to regard Shikarpoor as a usurpation of the Talpoor dynasty, but his plans were not yet matured, and he returned to his capital to learn of the death of Sunsar Chund He gave his consent to the succession of the son of a chief whose power once surpassed his own, and the Prince Khurruk Singh exchanged turbans, in token of brotherhood, with the heir of tributary Kototch †

he fortified himself in Ubohur (between Feerozpoor and Bhutneer), since construed into a British possession (Capt Murray to Agent, Delhi, 15th May, 1823), and, in 1820, he told Mr Moorcroft, that he was dissatisfied with Ranjeet Singh, that he was ready to join the English, and that, indeed, he would carry fire and sword wherever Mr. Moorcroft might desire (*Travels*, i. 110)

With regard to Dost Mahomed Khan, it is well-known, and Mr Masson (*Journeys*, iii 59, 60), and Moonshee Mohun Lal (*Life of Dost Mahomed*, i 127, 128), both show the extent to which he was an intriguer on this occasion This circumstance was subsequently lost sight of by the British negotiators and the British public, and Sikh and Afghan leaders were regarded as essentially antagonistic instead of as ready to coalesce for their selfish ends under any of several probable contingencies

* Capt Murray to the Governor-General's Agent, Delhi, 15th Dec 1825, and Capt Wade to the same, 7th Aug, 1823

† Murray's *Runjeet Singh*, p 141 For an interesting account of Sunsar Chund, his family, and his country, see *Moorcroft's Travels* i 126—146.

Runjeet Singh had now brought under his sway the three Mahometan provinces of Cashmeer Mooltan and Peshawur he was supreme in the hills and plains of the Punjab proper the mass of his dominion had been acquired, and although his designs on Ludakh and Sindh were obvious, a pause in the narrative of his actions may conveniently take place, for the purpose of relating other matters necessary to a right understanding of his character and which intimately bear on the general history of the country

Shah Shooja reached Loodiana as has been mentioned in the year 1816, and secured for himself an honoured repose but his thoughts were intent on Caubul and Candahar he disliked the British notion that he had tamely sought an asylum and he wished to be regarded as a prince in distress, seeking for aid to enable him to recover his crown. He had hopes held out to him by the Ameers of Sindh when hard pressed perhaps, by Futteh Khan, and he conceived that an invasion of Afghanistan might be successfully prosecuted from the southward He made offers of advantage to the English but he was told that they had no concern with the affairs of strangers, and desired to live in peace with all their neighbors. He was thus casting about for means when Futteh Khan was murdered and the tenders of allegiance which he received from Mahomed Azeem Khan at once induced him to quit Loodiana. He left that place in October 1818 with the aid of the Nawab of Buhawulpoor he mastered Dera Ghazee Khan he sent his son Tymoor to occupy Shikarpoor and he proceeded in person towards Peshawur to become, as he believed "the King of the

Dooranees. But Mahomed Azeem Khan had, in the meantime, seen fit to proclaim himself the Vuzeer of Ayoob, and Shah Shooja, hard pressed, sought safety among some friendly clans in the Khyber hills. He was driven thence at the end of two months, and had scarcely entered Shikarpoor, when Mahomed Azeem Khan's approach compelled him to retire. He went, first, to Khyrpoor, and afterwards to Hydrabad, and, having procured some money from the Sindhians, he returned and recovered Shikarpoor, where he resided for a year But Mahomed Azeem Khan again approached, the Hydrabad chiefs pretended that the Shah was plotting to bring in the English, and their money was this time paid for his expulsion. The ex-king, finding his position untenable, retired through Rajpootana to Delhi, and eventually took up his residence a second time at Loodiana in June, 1821 His brother, the blind Shah Zuman, after visiting Persia, and perhaps Arabia, arrived at the same place about the same time and by nearly the same road. Shah Shooja's stipend had all along been drawn by his family, represented by the able and faithful Wuffa Begum, and an allowance, first, of 18,000, and afterwards of 24,000 rupees a year, was assigned for the support of Shah Zuman, when he also became a petitioner to the English government.*

* Compare *Shah Shooja's Autobiog* ch xxvii, xxviii, xxix, in the Calcutta Monthly Journal for 1839, and the *Buhawulpoor Family Annals* (Manuscript) Capt. Murray (*History of Runjeet Singh*, p 103), merely states that Shah Shooja made an unsuccessful attempt to recover his throne, but the following letters may be referred to in support of all that is included in the para-

In the year 1820, Appa Sahib the deposed Raja of the Mahratta kingdom of Nagpoor escaped from the custody of the British authorities and repaired to Amritsir He would seem to have had the command of large sums of money and he endeavored to engage Runjeet Singh in his cause but the Muharaja had been told the fugitive was the violent enemy of his English allies and he ordered him to quit his territories. The chief took up his abode for a time in Sunsar Chund's principality of Kototch and while there he would appear to have entered into some idle schemes with Prince Hyder a son of Shah Zuman for the subjugation of India, south and east of the Sutlej The Dooranee was to be monarch of the whole, from Delhi to Cape Comorin but the Mahratta was to be Vuzeer of the empire, and to hold the Deccan as a dependent sovereign The Punjab was not included but it did not transpire that either Runjeet Singh or Sunsar Chund or the two ex kings of Caubul were privy to the design and as soon as the circumstance became known Sunsar Chund compelled his guest to proceed elsewhere. Appa Sahib repaired in 1822 to Mundee which lies between Kanggra and the Sutlej but he wandered to Amritsir about 1828 and only finally quitted the country during the following year to find an asylum with the Raja of Jodhpoor That state had become an English dependency and the ex raja s surrender was

graph —Government to Resident, Delhi, 10th May and 7th June, 18 7 ; Capt. Murray to Resident, Delhi, 22nd Sept. and 10th Oct 1818, and 1st April, 1825 and Capt. Murray to Sir D Ochterlonoy, 29th April, 30th June, and 27th Aug 1821

required ; but the strong objections of the Rajpoot induced the Government to be satisfied with a promise of his safe custody, and he died almost forgotten in the year 1840 *

As has been mentioned, the Raja Beer Singh, of Noorpoor, in the hills, had been dispossessed of his chiefship in the year 1816 He sought refuge to the south of the Sutlej, and immediately made proposals to Shah Shooja, who had just reached Loodiana, to enter into a combination against Runjeet Singh The Muharaja had not altogether despised similar tenders of allegiance from various discontented chiefs, when the Shah was his prisoner guest in Lahore , he remembered the treaty between the Shah and the English, and he knew how readily dethroned kings might be made use of by the ambitious He wished to ascertain the views of the English authorities, but he veiled his suspicions of *them* in terms of apprehension of the Noorpoor Raja His troops, he said, were absent in the neighborhood of Mooltan, and Beer Singh might cross the Sutlej and raise disturbances The reception of emissaries by Shah Shooja was then discountenanced, and the residence of the exiled Raja at Loodiana was discouraged , but Runjeet Singh was told that his right to attempt the recovery of his chiefship was admitted, although he would not be allowed to organize the means of doing

* Compare *Murray's Runjeet Singh*, p 126 , *Moorcroft's Travels*, i 109 , and the *quasi* official authority, the *Bengal and Agra Gazetteer for* 1841, 1842 (articles "Nagpoor" and "Jodhpur") See also Capt Murray's letters to Resident at Delhi, 24th Nov and 22d Dec , 1821, the 13th Jan 1822, and 16th June, 1824 , and likewise Capt Wade to Resident at Delhi, 15th March, 1828

so within the British limits. The Maharaja seemed satisfied that Lahore would be safe while absent in the south or west, and he said no more *

In the year 1819 the able and adventurous traveller Moorcroft left the plains of India in the hope of eaching Yarkund and Bokhara In the hills of the 'unjab he experienced difficulties and he was induced o repair to Lahore to wait upon Runjeet Singh He 'as honorably received and any lurking suspicions of is own designs or of the views of his Government 'ere soon dispelled The Maharaja conversed with 'ankness of the events of his life he showed the 'aveller his bands of horsemen and battalions of in intry and encouraged him to visit any part of the apital without hesitation and at his own leisure. Mr Moorcroft s medical skill and general knowledge his andid manner and personal activity produced an im ression favorable to himself and advantageous to his ountrymen but his proposition that British mer handize should be admitted into the Punjab at a fixed cale of duties, was received with evasion. The Muha ija s revenues might be affected it was said and his prin pal officers whose advice was necessary were absent n distant expeditions Every facility was afforded to Ir Moorcroft in prosecuting his journey and it was

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Th public correspondence generally of 1816—17 has here en referred to, and especially the letter of Government to Resi nt at Delhi, dated 11th April, 1817 In Beer Singh made another tempt to recover his principaly ; but he was seized and imprison . (*Murray's Runjeet Singh*, p 145. and Capt Murray to Resi nt at Delhi 25th Feb. 1127) He was subsequently released id was alive, but unheeded, in 1844.

arranged that, if he could not reach Yarkund from Tibet, he might proceed through Cashmeer to Caubul and Bokhara, the route which it was eventually found necessary to pursue. Mr Moorcroft reached Ludakh in safety, and in 1821 he became possessed of a letter from the Russian minister, Prince Nesselrode, recommending a merchant to the good offices of Runjeet Singh, and assuring him that the traders of the Punjab would be well received in the Russian dominions—for the emperor was himself a benign ruler, he earnestly desired the prosperity of other countries, and he was especially the well-wisher of that reigned over by the King of the Sikhs The person recommended had died on his way southward from Russia, and it appeared that, six years previously, he had been the bearer of similar communications for the Muharaja of Lahore, and the Raja of Ludakh *

Runjeet Singh now possessed a broad dominion, and an instructed intellect might have rejoiced in the opportunity afforded for wise legislation, and for consolidating aggregated provinces into one harmonious empire. But such a task neither suited the Muharaja's genius nor that of the Sikh nation, nor is it, perhaps, agreeable to the constitution of any political society, that its limits shall be fixed, or that the pervading spirit of a people shall rest, until its expansive force is destroyed and becomes obnoxious to change and decay. Runjeet Singh grasped the more obvious characteristics of the impulse given by Nanuk and Govind, he dexterously turned

* Moorcroft, *Travels*, i 99, 103, to and see also 383, 387, with respect to a previous letter to Runjeet Singh.

them to the purposes of his own material ambition and he appeared to be an absolute monarch in the midst of willing and obedient subjects. But he knew that he merely directed into a particular channel a power which he could neither destroy nor control and that to prevent the Sikhs turning upon himself or destroying one another he must regularly engage them in conquest and remote warfare. The first political system of the emancipated Sikhs had crumbled to pieces partly through its own defects, partly owing to its contact with a well ordered and civilized government and partly in consequence of the ascendancy of one superior mind The Misls* had vanished or were only represented by Alhoowaleea and Putteeala (or Phoolkeea) the one depending on the personal friendship of Runjeet Singh for its chief and the other upheld in separate portions by the ex pediency of the English But Runjeet Singh never thought his own or the Sikh sway was to be confined to the Punjab and his only wish was to lead armies as far as faith in the Khalsa and confidence in his skill would take brave and believing men He troubled himself not at all with the theory or the practical niceties of administration and he would rather have added a province to his rule than have received the assurances of his English neighbors that he legislated with discrimination in commercial affairs and with a just regard for the amelioration of his ignorant and fanatical subjects of various persuasions. He took from the land as much as it could readily yield and he took from merchants as much as they could profitably give he put down open marauding the

Sikh peasantry enjoyed a light assessment, no local officer dared to oppress a member of the Khalsa, and if elsewhere the farmers of revenue were resisted in their tyrannical proceedings, they were more likely to be changed than to be supported by battalions He did not ordinarily punish men who took redress into their own hands, for which, indeed, his subordinates were prepared, and which they guarded against as they could The whole wealth, and the whole energies, of the people, were devoted to war, and to the preparation of military means and equipment. The system is that common to all feudal governments, and it gives much scope to individual ambition, and tends to produce independence of character It suited the mass of the Sikh population; they had ample employment, they loved contention, and they were pleased that city after city admitted the supremacy of the Khalsa, and enabled them to enrich their families. But Runjeet Singh never arrogated to himself the title or the powers of despot or tyrant. He was assiduous in his devotions; he honored men of reputed sanctity, and enabled them to practise an enlarged charity, he attributed every success to the favor of God, and he styled himself and people collectively the "Khalsa," or commonwealth of Govind. Whether in walking barefooted to make his obeisance to a collateral representative of his prophets, or in rewarding a soldier distinguished by that symbol of his faith, a long and ample beard, or in restraining the excesses of the fanatical Akalees, or in beating an army and acquiring a province, his own name and his own motives were kept carefully concealed, and every thing was done for the sake of the Gooroo, for the

advantage of the Khalsa and in the name of the Lord *

In the year 1822, the French generals Ventura and Allard, reached Lahore by way of Persia and Afghanistan and after some little hesitation they were

* Runjeet Singh in writing or in talking of his government always used the term "Khalsa." On his seal he wrote, as any Sikh usually writes, his name, with the prefix "Akal Subaee, that is, for instance, "God the helper Runjeet Singh —an inscription strongly resembling the "God with us" of the Commonwealth of England Professor Wilson (*Journ. Royal Asiatic Society*, No xvii p. 51), thus seems scarcely justified in saying that Runjeet Singh deposed Nanuk and Govind, and the supreme ruler of the universe and held himself to be the impersonation of the Khalsa!

With respect to the abstract excellence or moderation, or the practical efficiency or suitableness of the Sikh government, opinions will always, differ as they will about all other governments. It is not simply an unmeaning truism to say that the Sikh government suited the Sikhs well for such a degree of fitness is one of the ends of all governments of ruling classes, and the adaptation has thus a degree of positive merit In judging of *individuals* moreover the extent and the peculiarities of the civilization of their times should be remembered, and the present condition of the Punjab shows a combination of the characteristics of rising mediæval Europe and of the decaying Byzantine empire,—semi-barbarous in either light, but possessed at once of a native youthful vigor and of an extraneous knowledge of many of the arts which adorn life in the most advanced stages of society

The fact, again, that a city like Amritsir is the creation of the Sikhs, at once refutes many charges of oppression or misgovernment, and Col. Francklin only repeats the general opinion of the time when he says (*Life Shah Alum*, p 77), that the lands under Sikh rule were cultivated with great assiduity Mr Masson could hear of no complaints in Mooltan (*Journeys* i 30, 398), and although Moorcroft notices the depressed condition of the Cashmeerees (*Travels* i. 123), he does not notice the circumstance of

employed and treated with distinction.* It has been usual to attribute the superiority of the Sikh army to the labors of these two officers, and of their subsequent coadjutors, the Generals Court and Avitabile; but, in truth, the Sikh owes his excellence as a soldier, to his own hardihood of character, to that spirit of adaptation which distinguishes every new people, and to that feeling of a common interest and destiny implanted in him by his great teachers. The Rajpoots and Puthans are valiant and high-minded warriors but their pride and their courage are personal only, and concern them as men of ancient family and noble lineage, they will do nothing unworthy of their birth, but they are indifferent to the political advancement of their race. The efforts of the Mahrattas in emancipating themselves from a foreign yoke, were neither guided nor strengthened by any distinct hope or desire They became free, but knew not how to remain independent, and they allowed a crafty Brahmin to turn their aimless aspirations to his own profit, and to found a dynasty of "Peshwas" on the achievements of unlettered Soodras Ambitious soldiers took a further advantage of the spirit called up by Sevajee, but as it was not sustained by any pervading religious principle of action, a few generations saw the race yield to the expiring efforts of Mahometanism, and the Mahrattas owe their present

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a grievous famine having occurred shortly before his visit, which drove thousands of the people to the plains of India, and he forgets that the valley had been under the sway of Afghan adventurers for many years, the severity of whose rule is noticed by Forster (*Travels*, ii. 26, &c)

* Murray's *Runjeet Singh*, p 131 , &c.

position as rulers to the intervention of European strangers. The genuine Mahratta can scarcely be said to exist, and the two hundred thousand spearmen of the last century are once more shepherds and tillers of the ground Similar remarks apply to the Goorkhas that other Indian people which has risen to greatness in latter times by its own innate power unmingled with religious hope. They became masters, but no peculiar institution formed the landmark of their thoughts and the vitality of the original impulse seems fast waning before the superstition of an ignorant priesthood and the turbulence of a feudal nobility The difference between these races and the fifth tribe of Indian warriors will be at once apparent. The Sikh looks before him only the ductility of his youthful intellect readily receives the most useful impression or takes the most advantageous form and religious faith is ever present to sustain him under any adversity and to assure him of an ultimate triumph

The Rajpoot and Puthan will fight as Pirthee Raee and Jenghiz Khan waged war they will ride on horses in tumultuous array and they will wield a sword and spear with individual dexterity but neither of these cavaliers will deign to stand in regular ranks and to handle the musket of the infantry soldier although the Mahometan has always been a brave and skilful server of heavy cannon The Mahratta is equally averse to the European system of warfare, and the less stiffened Goorkha has only had the power or the opportunity of forming battalions of footmen unsupported by an active cavalry and a trained artillery The early force of the Sikhs was composed of horsemen but they seem in

tuitively to have adopted the new and formidable matchlock of recent times, instead of their ancestral bows, and the spear common to every nation. Mr Forster noticed this peculiarity in 1783, and the advantage it gave in desultory warfare * In 1805, Sir John Malcolm did not think the Sikh was better mounted than the Mahratta ;† but, in 1810, Sir David Ochterloney considered that, in the confidence of untried strength, his great native courage would show him more formidable than a follower of Sindhia or Holkar, and readily lead him fo face a battery of well served guns ‡ The peculiar arm of the contending nations of the last century passed into a proverb, and the phrase, the Mahratta spear, the Afghan sword, the Sikh matchlock, and the English cannon, is still of common repetition , nor does it gratify the pride of the present masters of India, to hear their success attributed rather to the number and excellence of their artillery, than to that dauntless courage and firm array which have enabled the humble footmen to win most of those distant victories which add glory to the English name Nevertheless it has always been the object of rival powers to obtain a numerous artillery , the battalions of De Boigne would never separate themselves from their cannon, and the presence of that formidable arm is yet, perhaps, essential to the full confidence of the British Sepoy §

* Forster, *Travels*, i 332

† Malcolm's *Sketch of the Sikhs*, p 150, 151

‡ Sir D Ochterloney to Government, 1st Dec , 1810

§ This feeling is well known to all who have had any experience of Indian troops A gunner is a prouder man than a musketeer when battalions are mutinous, they will not allow

Runjeet Singh said that, in 1805 he went to see the order of Lord Lake s army * and it is known that in 1809 he admired and praised the discipline of Mr Metcalfe s small escort which repulsed the sudden onset of a body of enraged Akalees † He began after that period to give his attention to the formation of regular infantry and in 1812 Sir David Ochterloney saw two regiments of Sikhs besides several of Hindostanees drilled by men who had resigned or deserted the British service.‡ The next year the Muharaja talked of raising twenty five battalions§ and his confidence in discipline was increased by the resistance which the Goorkhas offered to the British arms. He enlisted people of that

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strangers to approach their guns, and the best dispositioned regiments will scarcely leave them in the rear to go into action unencumbered, an instance of which happened in Perron s warfare with George Thomas. (*Major Smith's regular Corps in Indian Employ* p 24.)

The ranks of the British army are indeed filled with Rajpoots and Puthans so called, and also with Brahmins bu nearly all are from the provinces of the Upper Ganges, the inhabitants of which have become greatly modified in character by complete conquest and mixture with strangers and, while they retain some of the distinguishing marks of their races, they are, as soldiers, the merest mercenaries, and do not possess the ardent and restless feeling or that spirit of clanship, which characterise the more genuine descendants of Khutrees and Afghans. The remarks in the text thus refer esp cially to the Puthans of Rohilkhund and Hurieeana and similar scattered colonies, and to the yeomanry and little proprietors of Rajpootana.

* Moorcroft, *Travels* i. 102

† Murray's *Runjeet Singh* p 68.

‡ Sir D Ochterloney to Government, 27th Feb 1812.

§ Sir D Ochterloney to Government, 4th March, 1813.

nation, but his attention was chiefly given to the instruction of his own countrymen, and in 1820 Mr Moorcroft noticed with approbation the appearance of the Sikh foot soldier * Runjeet Singh had not got his people to resign their customary weapons and order of battle without some trouble He encouraged them by good pay, by personal attention to their drill and equipment, and by himself wearing the strange dress, and going through the formal exercise † The old chiefs disliked the innovation, and Dehsa Singh Mujeetheea, the father of the present mechanic and disciplinarian Lehna Singh, assured the companions of Mr. Moorcroft, that Mooltan, and Peshawur, and Cashmeer, had all been won by the free Khalsa cavalier ‡ By degrees the infantry service came to be preferred, and, before Runjeet Singh died, he saw it regarded as the proper warlike array of his people Nor did they give their heart to the musket alone, but were perhaps more readily brought to serve guns than to stand in even ranks as footmen.

Such was the state of change of the Sikh army, and such were the views of Runjeet Singh, when Generals Allard and Ventura obtained service in the Punjab. They were fortunate in having an excellent material to work with, and, like skilful officers, they made a good use of their means and opportunities They gave a

* Moorcroft, *Travels*, i 98 There were at that time, as there are still, Goorkhas in the service of Lahore

† The author owes this anecdote to Moonshee Shahamut Alee, otherwise favorably known to the public by his book on the Sikhs and Afghans

‡ Moorcroft, *Travels*, i. 98

moderate degree of precision and completeness to a system already introduced, but their labors are more conspicuous in French words of command, in treble ranks and in squares salient with guns than in the ardent courage, the alert obedience, and the long endurance of fatigue which distinguished the Sikh horsemen sixty years ago and which preeminently characterise the Sikh footman of the present day among the other soldiers of India.* Neither did Generals Ventura and Allard Court and Avitabile, ever assume to themselves the merit of having created the Sikh army, and perhaps their ability and independence of character added more to the general belief in European supe

* For notices of this endurance of fatigue see Forster *Travels* i. 332, 333 Malcolm, *Sketch*, p 141 Mr Masson, *Journeys* i 435 and Col. Steinbach, *Punjab* p 63, 64

The general constitution of a Sikh regiment was a commandant and adjutant, with subordinate officers to each company The men were paid by deputies of the "Bukhshee," or paymaster; but the rolls were checked by Mootsuddees," or clerks, who daily noted down whether the men were absent or present To each regiment at least one "Grunt'hee, or reader of the scriptures, was attached, who, when not paid by the government, was sure of being supported by the men. The Grunt'h was usually deposited near the "jhunda," or flag which belonged to the regiment and which represented its head quarters. Light tents and beasts of burden were allowed in fixed proportions to each battalion, and the state also provided two cooks, or rather bakers, for each company who baked the men's cakes after they had themselves kneaded them, or who, in some instances provided unleavened loaves for those of their own or an inferio race. In cantonments the Sikh soldiers lived to some extent in barracks, and not each man in a separate hut, a custom which should be introduced into the British service.

riority, than all their instructions to the real efficiency of the Sikhs as soldiers.

When a boy, Runjeet Singh was betrothed, as has been related, to Mehtab Kour, the daughter of Goorbukhsh Singh, the young heir of the Kuneia (or Ghunnee) chiefship, who fell in battle with his father Muha Singh Sudda Kour, the mother of the girl, possessed a high spirit and was ambitious of power, and, on the death of the Kuneia leader, Jaee Singh, about 1793, her influence in the affairs of the confederacy became paramount She encouraged her young son-in-law to set aside the authority of his own widow mother, and at the age of seventeen the future Muharaja is not only said to have taken upon himself the management of his affairs, but to have had his mother put to death as an adultress. The support of Sudda Kour was of great use to Runjeet Singh in the beginning of his career, and the co-operation of the Kuneia Misl mainly enabled him to master Lahore and Amritsir Her hope seems to have been that, as the grandmother of the chosen heir of Runjeet Singh, and as a chieftainess in her own right, she would be able to exercise a commanding influence in the affairs of the Sikhs, but her daughter was childless, and Runjeet Singh himself was equally able and wary In 1807 it was understood that Mehtab Kour was pregnant, and it is believed that she was really delivered of a daughter, but, on Runjeet Singh's return from an expedition, he was presented with two boys as his offspring The Muharaja doubted and perhaps he always gave credence to the report that Sher Singh was the son of a carpenter, and Tara Singh the child of a weaver, yet they continued to be brought up under

the care of their reputed grandmother as if their parentage had been admitted But Sudda Kour perceived that she could obtain no power in the names of the children and the disappointed woman addressed the English authorities in 1810 and denounced her son in law as having usurped her rights and as resolved on war with his new allies. Her communications received some attention but she was unable to organize an insurrection, and she became in a manner reconciled to her position. In 1820 Sher Singh was virtually adopted by the Muharaja with the apparent object of finally setting aside the power of his mother in law She was required to assign half of the lands of the Kuneia chiefship for the maintenance of the youth, but she refused and she was in consequence seized and imprisoned and her whole possessions confiscated The little estate of Whudnee to the south of the Sutlej was however restored to her through British intervention, as has already been mentioned *

Runjeet Singh was also betrothed, when a boy, to the daughter of Khuzan Singh a chief of the Nukeia confederacy and by her he had a son in the year 1802, who was named Khurruk Singh, and brought up as his heir The youth was married in the year 1812 to the daughter of a Kuneia leader and the nuptials were celebrated amid many rejoicings. In 1816 the Muharaja placed the mother under some degree of restraint owing to her mismanagement of the estates assigned for the maintenance of the prince, and he en

* Compare Murray's *Runjeet Singh*, pp. 46—51 63, 127 128, 134, 135 See also Sir D Ochterloney to Government, 1st and 10th Dec 1810, and p 170 of this volume.

way to their most depraved appetites. But such excesses are nevertheless exceptional to the general usage, and those who vilify the Sikhs at one time, and describe their long and rapid marches at another should remember the contradiction and reflect that what common sense and the better feelings of our nature have always condemned can never be the ordinary practice of a nation. The armed defenders of a country cannot be kept under the same degree of moral restraint as ordinary citizens with quiet habits fixed abodes and watchful pastors and it is illogical to apply the character of a few dissolute chiefs and licentious soldiers to the thousands of hardy peasants and industrious mechanics and even generally to that body of brave and banded men which furnishes the most obvious examples of degradation.* The husbandman of the Punjab as of other provinces in Upper India, is confined to his cakes of millet or wheat and to a draught of water from the well the soldier fares not much better and neither indulge in strong liquors except upon occasions

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* Colonel Steinbach (*Punjab* p. 76, 77) admits general simplicity of diet but he also makes some revolting practices universal. Capt. Murray (*Runjeet Singh*, p 85), and Mr Masson (*Journeys* i 435) are likewise somewhat sweeping in their condemnations, and even Mr Elphinstone (*Hist of India* ii 565) makes the charge of culpable devotion to sensual pleasures very comprehensive The morals, or the manners, of a people however should not be deduced from a few examples of profligacy but the Indians equally exaggerate with regard to Europeans, and in pictorial or pantomimic pieces they usually represent Englishmen drinking and swearing in the society of courtezans, and as equally prompt to use their weapons with or without a reason.

of rejoicing. The indolent man of wealth or station, or the more idle religious fanatic, may seek excitement, or a refuge from the vacancy of his mind, in drugs and drink, but expensiveness of diet is rather a Mahometan than an Indian characteristic, and the Europeans carry their potations and the pleasures of the table to an excess unknown to the Turk and Persian, and which greatly scandalize the frugal Hindoo.*

Yet Runjeet Singh not only yielded more than was becoming to the promptings of his appetites, but, like all despots and solitary authorities, he laid himself open to the charge of extravagant partiality and favoritism. He had placed himself in some degree in opposition to the whole Sikh people, the free followers of Govind could not be the observant slaves of an equal member of the Khalsa, and he sought for strangers whose applause would be more ready if less sincere, and in whom he could repose some confidence as the creatures of his favor. The first who thus rose to distinction was Khooshhal Singh, a Brahmin from near Seharunpoor, who enlisted in one of the first raised regiments, and next became a runner or footman on the Muharaja's establishment. He attracted Runjeet Singh's notice, and was made Jemadar of the Deeoree, or master of the entry, about the year 1811. His brother seemed likely to supplant him, but his refusal to become a Sikh favored Khooshhal Singh's continuance

* Forster (*Travels*, i. 333) notices the temperance of the Sikhs, and their forbearance from many enervating sensual pleasures, and he quotes, he thinks, Colonel Polier to a similar effect. Malcolm (*Sketch*, p. 141) likewise describes the Sikhs as hardy and simple, but, doubtless, as the power of the nation has increased since these times, luxuries and vicious pleasures have, in numerous instances, followed wealth and indolence.

in power, until both yielded to the Jummóo Rajpoots in the year 1820. Golab Singh, the eldest of three sons, claimed that his grandfather was the brother of the well known Runjeet Deo but the family was perhaps illegi timate, and had become improverished and Golab Singh took service as a horseman in a band commanded by Jemadar Khooshhal Singh. He sent for his second brother Dhian Singh and then again like the reigning favorite, they both became running footmen under Runjeet Singh s eye. Their joint assiduity and the graceful bear ing of the younger man again attracted the Muharaja s notice, and Dhian Singh speedily took the place of the Brahmin chamberlain without, however consigning him to neglect for he retained his estates and his position as a noble. Golab Singh obtained a petty command and signalized himself by the seizure of the turbulent Ma hometan Chief of Rajaoree. Jummoo was then con ferred in jagheer or fief upon the family and the youngest brother Soochet Singh as well as the two elder were one by one raised to the rank of Raja and rapidly obtained an engrossing and prejudicial influence in the counsels of the Muharaja excepting perhaps, in connection with his English relations the importance of which required and obtained the exercise of his own unbiassed opinion. The smooth and crafty Golab Singh ordinarily remained in the hills, using Sikh means to extend his own authority over his brother Rajpoots and eventually into Ludakh the less able, but more polished Dhian Singh remained continually in attendance upon the Muharaja, ever on the watch in order that he might anticipate his wishes while the elegant Soochet Singh fluttered as a gay courtier and gallant soldier without

grasping at power or creating enemies. The nominal fukeer or devotee, the Mahometan Uzeezooddeen, never held the place of an ordinary favorite, but he attached himself at an early period to Runjeet Singh's person, and was honored and trusted as one equally prudent and faithful, and, during the ascendancy both of Khooshhal Singh and Dhian Singh, he was always consulted, and invariably made the medium of communication with the British authorities The above were the most conspicuous persons in the Lahore court; but the mind of Runjeet Singh was never prostrate before that of others, and he conferred the government of Mooltan on the discreet Sawun Mull, and rewarded the military talents and genuine Sikh feelings of Hurree Singh Nulwa by giving him the command on the Peshawur frontier, while his ancient companion, Futteh Singh Alhoowaleea, remained, with increased wealth, the only representative of the original "Misls," and Dehsa Singh Mujeetheea enjoyed the Muharaja's esteem and confidence as governor of Amritsir and of the Jalundhur Dooab *

* Compare Murray's *Runjeet Singh*, p 84, 113, 125, 147, *Moonshee Shahamut Alee's Sikhs and Afghans*, ch iv. and vii, and, with regard to Uzeezooddeen and Dehsa Singh, see Moorcroft, *Travels*, i 94, 98, 110, &c. Lieut-Colonel Lawrence's work, *The Adventurer in the Punjab*, and Capt Osborne's *Court and Camp of Runjeet Singh*, likewise contain some curious information about the Muharaja's chiefs and favorites, and the author has had the further advantage of referring to a memorandum on the subject, drawn up by Mr. Clerk for Lord Ellenborough Mahkum Chund has already been alluded to (see *ante*, p 196), and the Brahmin Deewan Chund may also be mentioned He was the real commander when Mooltan was stormed, and he led the advance when Cashmeer was at last seized Of genuine Sikhs, too, Mit'h Singh Behraneea was distinguished as a brave and generous soldier

CHAPTER VII

FROM THE ACQUISITION OF MOOLTAN CASHMEER, AND PESHAWUR TO THE DEATH OF RUNJEET SINGH.

1824—1839.

Changed relations of the English and Sikhs—Miscellaneous transactions—Capt Wade the political agent for Sikh affairs—The Jummoo Rajas—Syed Akmed Shah's insurrection at Peshawur—The fame of Runjeet Singh—The meeting at Rooper with Lord William Bentinck—Runjeet Singh's views on Sindh and the English scheme of navigating the Indus—Shah Shooja's expedition of 1833 35 and Runjeet Singh's regular occupation of Peshawur—Ludakh reduced by Raja Golab Singh—Runjeet Singh's claims on Shikarpoor and designs on Sindh crossed by the commercial policy of the English.—The connect ion of the English with the Barukzaees of Afghanistan—Dost Mahomed retires before Runjeet Singh.—The Sikhs defeated by the Afghans—The marriage of Nao Nihal Singh—Sir Henry Fane—The English, Dost Mahomed and the Russians and the restoration of Shah Shooja.—Runjeet Singh feels curbed by the English.—The death of Runjeet Singh.

RUNJEET SINGH had brought Peshawur under his sway but the complete reduction of the province was yet to cost him an arduous warfare of many years He had become master of the Punjab almost unheeded by the English, but the position and views of that

people had changed since they asked his aid against the armies of Napoleon. The Jumna and the sea-coast of Bombay were no longer the proclaimed limits of their empire, the Nerbudda had been crossed, the states of Rajpootana had been rendered tributary, and, with the laudable design of diffusing wealth and of linking remote provinces together in the strong and useful bonds of commerce, they were about to enter upon schemes of navigation and of trade, which caused them to deprecate the ambition of the King of the Sikhs, and led them, by sure yet unforeseen steps, to absorb his dominion in their own, and to grasp, perhaps inscrutably to chasten, with the cold unfeeling hand of worldly rule, the youthful spirit of social change and religious reformation evoked by the genius of Nanuk and Govind.

In the year 1824, the turbulent Mahometan tribes on either side of the Indus above Attok arose in rebellion, and the Sikh general, Hurree Singh, received a severe check. The Muharaja hastened by forced marches to that quarter, and again forded the rapid, stony-bedded Indus, but the mountaineers dispersed at his approach, and his display of power was hardly rewarded by Yar Mahomed Khan's renewed protestations of allegiance.* In 1825 Runjeet Singh's attention was amused with overtures from the Goorkhas, who forgot his former rivalry in the overwhelming greatness of the English, but the precise object of the Nepalese did not transpire, and the restless spirit of the Sikh chief soon led him to the Chenab, with the

* Capt. Murray's *Runjeet Singh*, p. 141, 142.

design of seizing Shikarpore.* The occurrence of a scarcity in Sindh and perhaps the rumors of the hostile preparations of the English against Bhurtpoor, induced him to return to his capital before the end of the year The *Jat* usurper of the Jumna asked his brother *Jat* of the Ravee to aid him but the Maharaja affected to discredit the mission and so satisfied the British authorities without compromising himself with the master of a fortress which had successfully resisted the disciplined troops and the dreaded artillery of his neighbors.† But about the same time Runjeet Singh likewise found reason to distrust the possessors of strongholds and Futteh Singh Alhoowaleea was constrained by his old brother in arms to leave a masonry citadel unfinished and was further induced by his own fears to fly to the south of the Sutlej. He was assured of English protection in his ancestral estates in the Sirhind province, but Runjeet Singh remembering perhaps the joint treaty with Lord Lake, earnestly endeavored to allay the fears of the fugitive, and to recall a chief so dangerous in the hands of his allies. Futteh Singh returned to Lahore in 1827 he was received with marked honour and he was confirmed in nearly all his possessions.‡

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* Agent at Delhi to Capt. Murray 18th March 1825 and Capt. Murray in reply 28th March. Compare also Murray's *Runjeet Singh*, p. 144

† Capt. Murray to the Resident at Delhi, 1st and 3d Oct., 1825 and Capt. Wade to Capt. Murray 5th Oct., 1825

‡ Resident at Delhi to Capt. Murray 13th Jan., 1826, and Capt. Murray's *Runjeet Singh*, p 144. The old chief had, as early as 1811, desired to be regarded as separately connected with the

Towards the end of 1826, Runjeet Singh was attacked with sickness, and he sought the aid of European skill. Dr Murray, a surgeon in the British-Indian army, was sent to attend him, and he remained at Lahore for some time, although the Muharaja was more disposed to trust to time and abstinence, or to the empirical remedies of his own physicians, than to the prescribers of unknown drugs and the practisers of new ways Runjeet Singh, nevertheless, liked to have his foreign medical adviser near him, as one from whom information could be gained, and whom it might be advantageous to please He seemed anxious about the proposed visit of Lord Amherst, the Governor General, to the northern provinces, he asked about the qualities of the Burmese troops, and the amount of money demanded by the English victors at the end of the war with that people, he was inquisitive about the mutiny of a regiment of Sepoys at Barrackpoor, and he wished to know whether native troops had been employed in quelling it* On the arrival of Lord Amherst at Simlah, in 1827, a further degree of intimacy became inevitable, a mission of welcome and inquiry was sent

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English, so fearful had he become of his "Turban-brother" (Government to Sir D Ochterloney, 4th October, 1811)

The cis-Sutlej Mahometan Chief of Mumdot, formerly of Kussoor, fled and returned about the same time as Futteh Singh, for similar reasons, and after making similar endeavours to be recognised as an English dependent (Government to Resident at Delhi, 28th April, 1827, with correspondence to which it relates, and compare Murray's *Runjeet Singh*, p 145.)

* Capt Wade to the Resident at Delhi, 24th Sept and 30th Nov, 1826, and 1st Jan 1827. Compare Murray's *Runjeet Singh* p. 145

to wait upon his lordship and the compliment was returned by the deputation of Captain Wade the British frontier authority to the Muharaja's court.* During the following year the English commander in chief arrived at Loodiana and Runjeet Singh sent an agent to convey to him his good wishes but an expected invitation to visit the strongholds of the Punjab was not given to the captor of Bhurtpoor.†

The little business to be transacted between the British and Sikh governments was entrusted to the management of the resident at Delhi who gave his orders to Captain Murray the political agent at Ambala, who again had under him an assistant, Captain Wade at

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* Government to Capt. Wade, 2d May 1827

† Murray's *Runjeet Singh*, p. 147 About this time the journeyings and studies of the enthusiastic scholar Csoma de Koros, and the establishment of Simlah as a British post, had made the Chinese of Tibet as curious about the English in one way as Runjeet Singh was in another Thus the authorities at Garo appear to have addressed the authorities of Bissehir an English dependency, saying "that in ancient times there was no mention of the Feelingpa, (*i. e* Feringhees or Franks a bad and "small people whereas now many visited the upper countries "every year and had caused the chief of Bissehir to make pre "parations for their movements The Great Lama was displeased, "and armies had been ordered to be watchful. The English "should be urged to keep within their own limits, or if they wanted an alliance they could go by sea to Pekin. The people of "Bissehir should not rely on the wealth and the expertness in "warfaring of the English the emperor was 30 *pukisui* (120 "miles) higher than they he ruled over the four elements: a war would involve the six nations of Asia in calamities; the English "should remain within their boundaries;"—and so on in a strain of deprecation and hyperbole (Political Agent Subathoo to Resident at Delhi 26th March, 1827)

Loodiana, mainly in connection with the affairs of the garrison of that place. When Captain Wade was at Lahore, the Muharaja expressed a wish that, for the sake of despatch in business, the agency for his Cis-Sutlej possessions should be vested in the officer at Loodiana subordinate to the resident at Delhi, but independent of the officer at Ambala.* This wish was complied with,† but in attempting to define the extent of the territories in question, it was found that there were several doubtful points to be settled. Runjeet Singh claimed supremacy over Chumkowr, and Anundpoor Makhowal, and other places belonging to the Sodhees, or collateral representatives of Gooroo Govind He also claimed Whudnee, which, a few years before, had been wrested from him on the plea that it was his mother-in-law's, and he claimed Feerozpoor, then held by a childless widow, and also all the Alhoowaleea districts, besides others which need not be particularized ‡ The claims of the Muharaja over Feerozpoor and the ancestral possessions of Futteh Singh Alhoowaleea were rejected, but the British title to

* Capt Wade to Resident at Delhi, 20th June, 1827

† Government to Resident at Delhi, 4th Oct, 1827

‡ Capt Wade to the Resident at Delhi, 20th Jan, 1828, and Capt Murray to the same, 19th Feb 1828.

In the case of Feerozpoor, Government subsequently decided (Government to Agent at Delhi, 24th Nov, 1838), that certain collateral heirs (who had put in a claim) could not succeed, as, according to Hindoo Law and Sikh usage, no right of descent existed after a division had taken place So uncertain, however, is the practice of the English, that one or more precedents in favour of the Feerozpoor claimants might readily be found within the range of cases connected with the Sikh states.

supremacy over Whudnee could no longer it was found be maintained The claims of Lahore to Chumkowr and Anundpoor Makhowal were expediently admitted, for the British right did not seem worth maintaining and the affairs of the priestly class of Sikhs could be best managed by a ruler of their own faith * Runjeet Singh disliked the loss of Feerozpoor which the English long continued to admire as a commanding position † but the settlement generally was such as seemed to lessen the chances of future collision between the two governments

Runjeet Singh s connection with the English thus became more and more close and about the same time he began to resign himself in many instances to the views of his new favorites of Jummoo The Muharaja had begun to notice the boyish promise of Heera Singh the son of Dhian Singh and he may have been equally pleased with the native simplicity and with the tutored deference, of the child He gave him the title of Raja and his father true to the Indian feeling was desirous of establishing the purity of his descent by marrying his son into a family of local power and of spotless genealogy The betrothal of a daughter of the deceased Sunsar Chund of Kanggra was demanded in the year

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* Government to the Resident at Delhi, 14th Nov., 1828

† In 1823 Capt. Murray talked of the "strong and important fortress of Feerozpoor having been recovered by Runjeet Singh for the widow proprietress from whom it had been seized by a claimant (Captain Murray to the Agent at Delhi, 20th July 1823), and the supreme authorities similarly talked (Government to Agent at Delhi, 30th Jan., 1824) of the political and military advantages of Feerozpoor over Loodiana

1828, and the reluctant consent of the new chief, Unrodh Chund, was obtained when he unwittingly had put himself wholly in the power of Dhian Singh by visiting Lahore with his sisters for the purpose of joining in the nuptial ceremonies of the son of Futteh Singh Alhoowaleea The proposed degradation rendered the mother of the girls, perhaps, more indignant than the head of the family, and she contrived to escape with them to the south of the Sutlej. Unrodh Chund was required to bring them back, but he himself also fled, and his possessions were seized The mother died of grief and vexation, and the son followed her to the grave, after idly attempting to induce the English to restore him by force of arms to his little principality. Sunsar Chund had left several illegitimate children, and in 1829, the disappointed Muharaja endeavoured to obtain some revenge by marrying two of the daughters himself, and by elevating a son to the rank of Raja, and investing him with an estate out of his father's chiefship The marriage of Heera Singh to a maiden of his own degree, was celebrated during the same year with much splendor, and the greatness of Runjeet Singh's name induced even the chiefs living under British protection to offer their congratulations and their presents on the occasion *

In the meanwhile a formidable insurrection had been organized in the neighbourhood of Peshawur, by an unheeded person and in an unlooked-for manner One Ahmed Shah, a Mahometan of a family of Syeds of Ba-

* Murray's *Runjeet Singh*, p 147, 148, and Resident at Delhi to Government, 28th Oct. 1828.

reilly in Upper India, had been a follower of the great mercenary leader Ameer Khan but he lost his employment when the military force of his chief was broken up on the successful termination of the campaign against the joint Mahratta and Pindarra powers and after Ameer Khan s own recognition by the English as a dependent prince. The Syed went to Delhi and a preacher of that city named Abdool Uzeez declared himself greatly edified by the superior sanctity of Ahmed who re nounced the corrupt forms of worship then prevalent and endeavored to enforce attention to the precepts of the Koran alone without reference to the expositions of the early fathers. His reputation increased and two Molvees Ismaeel and Abdool Haee of some learning but doubtful views attached themselves to the Syed as his humble disciples and devoted followers.* A pil

* A book was composed by Molvee Ismaeel, on the part of Syed Ahmed in the Oordoo, or vernacular language of Upper India, at once exhortative and justificatory of his views. It is called the Tukveea-ool Iman, or Basis of the Faith, and it was printed in Calcutta. It is divided into two portions of which the first only is understood to be the work of Ismaeel, the second part being inferior and the production of another person.

In the preface the writer deprecates the opinion that the wise "and learned alone can comprehend God s word God himself "had said a prophet had been raised up among the rude and "ignorant for their instruction, and that He, the Lord, had ren dered obedience easy There were two things essential a "belief in the unity of God, which was to know no other and a "knowledge of the prophet which was obedience to the law "Many held the saying of the saints to be their guide but the "word of God was alone to be attended to, although the writings "of the pious which agreed with the Scriptures, might be read "for edification

grimage was preached as a suitable beginning for all undertakings, and Ahmed's journey to Calcutta in 1822 for the purpose of embarkation, was one of triumph, although his proceedings were little noticed until his presence in a large city gave him numerous congregations He set sail for Mecca and Medina, and he is commonly believed, but without reason, to have visited Constantinople After an absence of four years he returned to Delhi, and called upon the faithful to follow him in a war against infidels He acted as if he meant by unbelievers the Sikhs alone, but his precise objects are imperfectly understood He was careful not to offend the English, but the mere *supremacy* of a remote nation over a wide and populous country, gave him ample opportunities for unheeded agitation In 1826 he left Delhi with perhaps five hundred attendants, and it was arranged that other bands should follow in succession under appointed leaders He made some stay at Tonk, the residence of his old master, Ameer Khan, and the son of the chief, the present Nuwab, was enrolled among the disciples of the new saint. He obtained considerable assistance, at least in money, from the youthful convert, and he proceeded through the desert to Kheirpoor in Sindh, where he was well received by Meer Roostum Khan, and where he awaited the junction of the "Ghazees," or fighters for the faith, who were following him Ahmed marched to Candahar, but his projects were mistrusted or misunderstood, he received no encouragement from the Barukzaee brothers in possession, and he proceeded northward through the Ghiljaee country, and in the beginning of 1827 he crossed the Caubul river to Punjtar

in the Eusofzaee hills, between Peshawur and the Indus.*

The Punjtar family is of some consequence among the warlike Eusofzaees, and as the tribe had become apprehensive of the designs of Yar Mahomed Khan whose dependence on Runjeet Singh secured him from danger on the side of Caubul, the Syed and his "Ghazees" were hailed as deliverers, and the authority or supremacy of Ahmed was generally admitted. He led his ill equipped host to attack a detachment of Sikhs which had been moved forward to Akora, a few miles

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The first chapter treats of the unity of God, and in it the writer deprecates the supplication of saints, angels, &c. as impious. He declares the reasons given for such worship to be futile, and to show an utter ignorance of God's word. "The ancient idolaters "had likewise said that they merely venerated powers and divini"ties, and did not regard them as the equal of the Almighty but "God himself had answered these heathens. Likewise the Chris"tians had been admonished for giving to dead monks and friars "the honour due to the Lord. God is alone, and companion he "has none; prostration and adoration are due to him, and to no "other." The writer proceeds in a similar strain but assumes some doubtful positions, as that Mahomet says God is one and man learns from his parents that he was born; he believes his mother and yet he distrusts the apostle; or that an evil-doer who has faith is a better man than the most pious idolater.

* Compare Murray's *Runjeet Singh* p. 145, 146. About Syed Ahmed, the author has learnt much from the Ghazee's brother-in-law and from a respectable Molvee, who likewise followed his fortunes, and both of whom are now in honorable employ in the chiefship of Tonk. He has likewise learnt many particulars from Moonshee Shahamut Alee, and especially from Peer Ibrahim Khan, a straight-forward and intelligent Puthan of Kussoor in the British service, who thinks Ahmed right, notwithstanding the holy neighborhood of Pakputtun, Mooltan, and Oojch! Indeed, most

above Attok, under the command of Boodh Singh Sindhanwala, of the same family as the Muharaja. The Sikh commander entrenched his position, and repulsed the tumultuous assault of the mountaineers with considerable loss, but as he could not follow up his success, the fame and the strength of the Syed continued to increase, and Yar Mahomed deemed it prudent to enter into an agreement obliging him to respect the territories of the Eusofzaees. The curbed governor of Peshawur is accused of a base attempt to remove Ahmed by poison, and, in the year 1829, the fact or the report was made use of by the Syed as a reason for appealing to arms. Yar Mahomed was defeated and mortally wounded, and Peshawur was perhaps saved to his brother, Sooltan Mahomed, by the presence of a Sikh force under the Prince Sher Singh and General Ventura, which had been moved to that quarter under pretence of securing for the Muharaja a long promised horse of famous breed named Leila, the match of one of equal renown named Kuhhar, which Runjeet Singh had already prized himself on obtaining from the Barukzaee brothers *

The Sikh troops withdrew to the Indus, leaving

educated Mahometans admit the reasonableness of his doctrines, and the able Regent-Begum of Bhopal, is not indisposed to emulate the strictness of the Chief of Tonk, as an abhorrer of vain ceremonies Among humbler people the Syed likewise obtained many admirers, and it is said that his exhortations generally were so efficacious, that even the tailors of Delhi were moved to scrupulously return remnants of cloth to their employers!

* Compare Murray's *Runjeet Singh*, p 146, 149 The followers of Syed Ahmed believe that poison was administered, and describe the "Ghazee," as suffering much from its effects

Sooltan Mahomed Khan and his brothers to guard their fief or dependency as they could and it would even seem that Runjeet Singh hoped the difficulties of their position and the insecurity of the province, would justify its complete reduction * But the influence of Syed Ahmed reached to Cashmeer and the mountaineers between that valley and the Indus were unwilling subjects of Lahore. Ahmed crossed the river in June, 1830 and planned an attack upon the Sikh force commanded by Hurree Singh Nulwa and General Allard, but he was beaten off and forced to retire to the west of the river In a few months he was strong enough to attack Sooltan Mahomed Khan the Barukzaee was defeated and Peshawur was occupied by the Syed and his Ghazees" His elation kept pace with his success and according to tradition already busy with his career he proclaimed himself Caliph and struck a coin in the name of Ahmed the Just the defender of the faith the glitter of whose sword scattereth destruction among infidels." The fall of Peshawur caused some alarm in Lahore, and the force on the Indus was strengthened and placed under the command of Prince Sher Singh The petty Mahometan chiefs generally

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General Ventura at last succeeded in obtaining a Leila, but that the real horse, so named, was transferred is doubtful, and at one time it was declared to be dead. (Capt. Wade to the Resident, Delhi, May 17th, 1829.)

Capt. Wade to the Resident, Delhi 13th Sept., 1830. The Muharaja also reserved a cause of quarrel with the Barukzaees, on account of their reduction of the Khuttuks, a tribe which Runjeet Singh said Futteh Khan the Vuzeer had agreed to leave independet (Capt. Wade to Government, 9th Dec., 1831)

with whom self-interest overcame faith, were averse to the domination of the Indian adventurer, and the imprudence of Syed Ahmed gave umbrage to his Eusofzaee adherents. He had levied from the peasants a tithe of their goods, and this measure caused little or no dissatisfaction, for it agreed with their notion of the rights of a religious teacher, but his decree that all the young women of marriageable age should be at once wedded, interfered with the profits of Afghan parents, proverbially avaricious, and who usually disposed of their daughters to the wealthiest bridegrooms. But when Syed Ahmed was accused, perhaps unjustly, of assigning the maidens one by one to his needy Indian followers, his motives were impugned, and the discontent was loud Early in November, 1830, he was constrained to relinquish Peshawur to Sooltan Mahomed at a fixed tribute, and he proceeded to the left bank of the Indus to give battle to the Sikhs. The Syed depended chiefly on the few "Ghazees" who had followed his fortunes throughout, and on the insurrectionary spirit of the Mozufferabad and other chiefs, for his Eusofzaee adherents had greatly decreased. The hill "khans" were soon brought under subjection by the efforts of Sher Singh and the governor of Cashmeer, yet Ahmed continued active, and, in a desultory warfare amid rugged mountains, success for a time attended him, but, during a cessation of the frequent conflicts, he was surprised early in May, 1831, at a place called Balakot, and fallen upon and slain The Eusofzaees at once expelled his deputies, the "Ghazees" dispersed in disguise, and the family of the Syed hastened to Hindostan to find an

honorable asylum with their friend the Nuwab of Tonk *

The fame of Runjeet Singh was now at its height, and his friendship was sought by distant sovereigns. In 1829, agents from Belotchistan brought horses to the Sikh ruler and hoped that the frontier posts of Hurrund and Dajel westward of the Indus which his feudatory of Buhawulpoor had usurped would be restored to the Khan.† The Muharaja was likewise in communication with Shah Mehmood of Heerat,‡ and in 1830 he was invited by the Baeeza Baee of Gwalior to honor the nuptials of the young Sindhia with his presence.§ The English were at the same time not without a suspicion that he had opened a correspondence with Russia,|| and they were themselves about to flatter

* Capt. Wade to Resident at Delhi, 21st March, 1831 and other dates in that and the previous year Compare Murray's *Runjeet Singh*, p. 150 The followers of the Syed strenuously deny his assumption of the title of Caliph his new coinage, and his bestowal of Eusofzaee maidens on his Indian followers.

† Capt. Wade to the Resident at Delhi 3rd May 1829, and 29th April, 1830. Hurrund was once a place of considerable repute (See *Munshee Mohun Lal's Journal*, under date 3rd March 1836.) The Buhawulpoor Memoirs show that the Nuwab was aided by the treachery of others in acquiring it. The place had to be retaken by General Ventura (as the author learnt from that officer), when Buhawul Khan was deprived of his territories west of the Sutlej

‡ Capt. Wade to Resident at Delhi 21st Jan., 1829, and 3rd Dec., 1830

§ Capt Wade to Resident at Delhi 7th April, 1830. The Muharaja declined the invitation, saying Sindhia was not at Lahore when *his* son was married

|| Capt. Wade to Resident at Delhi 24th August, 1830

him as one necessary to the fulfilment of their expanding views of just influence and profitable commerce.

In the beginning of 1831, Lord William Bentinck, the Governor General of India, arrived at Simlah, and a Sikh deputation waited upon his Lordship to convey to him Runjeet Singh's complimentary wishes for his own welfare and the prosperity of his Government. The increasing warmth of the season prevented the despatch of a formal return mission, but Captain Wade, the political agent at Loodiana, was made the bearer of a letter to the Muharaja, thanking him for his attention The principal duty of the agent was, however, to ascertain whether Runjeet Singh wished, and would propose, to have an interview with Lord William Bentinck, for it was a matter in which it was thought the English viceroy could not take the initiative * The object of the Governor General was mainly to give the world an impression of complete unanimity between the two states, but the Muharaja wished to strengthen his own authority, and to lead the Sikh public to believe his dynasty was acknowledged as the proper head of the "Khalsa," by the predominant English rulers. The able chief, Hurree Singh, was one of those most averse to the recognition of the right of the Prince Khurruk Singh, and the heir apparent himself would seem to have been aware of the feelings of the Sikh people, for he had the year before opened a correspondence with the Governor of Bombay, as if to derive hope from the

* Government to Capt Wade, 28th April, 1831, and Murray's *Runjeet Singh*, p 162.

vague terms of a complimentary reply * Runjeet Singh thus readily proposed a meeting and one took place at Rooper on the banks of the Sutlej in the month of October (1831). A present of horses from the King of England had in the mean time, reached Lahore, by the Indus and Ravee rivers, under the escort of Lieutenant Burnes, and during one of the several interviews with the Governor General Runjeet Singh had sought for and obtained a written assurance of perpetual friendship.† The impression went abroad that his family would be supported by the English Government, and ostensibly Runjeet Singh's objects seemed wholly as they had been partly gained But his mind was not set at ease about Sindh vague accounts had reached him of some design with regard to that country he plainly hinted his own schemes and observed the Ameers had no efficient troops and that they could not be well disposed towards the English, as they had thrown difficulties in the way of Lieutenant Burnes' progress. ‡

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* With regard to this interchange of letters, see the Persian Secretary to the Political Secretary at Bombay 6th July 1830

That Runjeet Singh was jealous, personally of Hurree Singh or that the servant would have proved a traitor to the living master is not probable but Hurree Singh was a zealous Sikh and an ambitious man and Khurruk Singh was always full of doubts and apprehensions with respect to his succession and even his safety Runjeet Singh's anxiety with regard to the meeting at Rooper exaggerated, perhaps, by M Allard, may be learnt from Mr Prinsep's account in Murray's *Runjeet Singh*, p. 162

† Murray's *Runjeet Singh*, p. 166.

‡ Murray's *Runjeet Singh*, p 167 This opinion of Runjeet Singh about Sindhian troops, may not be pleasing to the victors of Dubba and Meeanee, although the Muharaja impugned not their

But the Governor-General would not divulge to his inquiring guest and ally, the tenor of propositions already on their way to the chiefs of Sindh, confessedly lest the Maharaja should at once endeavour to counteract his peaceful and beneficial intentions.* Runjeet Singh may or may not have felt that he was distrusted, but as he was to be a party to the opening of the navigation of the Indus, and as the project had been matured, it would have better suited the character and the position of the British Government had no concealment been attempted.

The traveller Moorcroft had been impressed with the use which might be made of the Indus as a channel of British commerce,† and the scheme of navigating that river and its tributaries was eagerly adopted by the Indian Government, and by the advocates of material utilitarianism. One object of sending King William's presents for Runjeet Singh by water, was to ascertain, as if undesignedly, the trading value of the classical stream,‡ and the result of Lieutenant Burnes' observations convinced Lord William Bentinck of its superiority over the Ganges. There seemed also, in his

courage, but their discipline and equipment. Shah Shooja's expedition, of 1834, nevertheless, served to show the fairness of Runjeet Singh's conclusions

* Murray's *Runjeet Singh*, p 167, 168 The whole of the tenth chapter of Capt Murray's book, which includes the meeting at Rooper, may be regarded as the composition of Mr Prinsep, the Secretary to Government, with the Governor General

† Moorcroft, *Travels*, ii 338

‡ Government to Colonel Pottingser, Oct. 22nd, 1831, and Murray's *Runjeet Singh*, p. 153.

Lordship s opinion good reason to believe that the great western valley had at one time been as populous as that of the east, and it was thought that the judicious exercise of the paramount influence of the British Government, might remove those political obstacles which had banished commerce from the rivers of Alexander * It was therefore resolved in the current language of the day to open the Indus to the navigation of the world

Before the Governor-General met Runjeet Singh he had directed Colonel Pottinger to proceed to Hydrabad to negotiate with the Ameers of Sindh the opening of the lower portion of the river to all boats on the payment of a fixed toll † and two months afterwards or towards the end of 1831 he wrote to the Muharaja that the desire he had formerly expressed to see a steam boat, was a proof of his enlightened understanding and was likely to be gratified before long as it was wished to draw closer the commercial relations of the two states. Captain Wade was at the same time sent to explain in person, the object of Colonel Pottinger's mission to Sindh to propose the free navigation of the Sutlej in continuation of that of the Lower Indus and to assure the Muharaja that by the extension of British commerce, was not meant the extension of the British power.‡ But Runjeet Singh also had his views and his suspi

* Government to Col. Pottinger 22nd Oct. 1831

† Murray's *Runjeet Singh*, p 168.

‡ Government to Capt. Wade, 19th Dec., 1831 It is admitted that the mission or the schemes, had a political reference to Russia and her designs, but the Governor-General would not avow his motives. (Murray's *Runjeet Sigh*, p 168.)

cions.* In the south of the Punjab he had wrought by indirect means, as long as it was necessary to do so among a newly conquered people. The Nuwab of Buhawulpoor, his manager of the country across to Dera Ghazee Khan, was less regular in his payments than he should have been, and his expulsion from the Punjab Proper would be profitable, and unaccompanied with danger, if the English remained neuter. Again, Buhawul Khan was virtually a chief protected by the British Government on the left bank of the Sutlej, and Lieutenant Burnes was on his way up the Indus. The Muharaja, ever mistrustful, conceived that the political status of that officer's observation, would be referred to and upheld by his Government as the true and permanent one,† and hence the envoy found affairs in process of change when he left the main stream of the Indus, and previous to the interview at Rooper, General Ventura had dispossessed Buhawul Khan both of his Lahore farms, and of his ancestral territories on the right bank of the Sutlej.‡ Further, Shikarpoor formed no part of the Sindh of the Kulhoras or Talpoors, it had only fallen to the latter usurpers after the death of Mahomed Azeem Khan, the vuzeer of the titular king, Shah Ayoob, and it continued to be held jointly by the three families of Kheirpoor, Meerpoor, and Hydrabad, as a

* Runjeet Singh's attention was mainly directed to Sindh, and a rumored matrimonial alliance between one of the Ameers, or the son of one of them, and a Persian princess, caused him some anxeity. (Capt. Wade to Government, 5th Aug, 1831.)

† This view appears to have subsequently occurred to Capt. Wade as having influenced the Muharaja. See his letter to Government, 18th Oct., 1836.

‡ Capt. Wade to Government, 5th Nov., 1831.

fortuitous possession. Runjeet Singh considered that he, as the paramount of the Barukzaees of the Indus had a better right to the district than the Ameers of south-eastern Sindh and he was bent upon annexing it to his dominions *

Such was Runjeet Singh's temper of mind when visited by Captain Wade to negotiate the opening of the Sutlej to British traders. The Muharaja avowed himself well pleased but he had hoped that the English were about to force their way through Sindh, he asked how many regiments Colonel Pottinger had with him and he urged his readiness to march and coerce the Ameers † It was further ascertained that he had made propositions to Meer Alee Moorad of Meerpoor to farm Dera Ghazee Khan as if to sow dissensions among the Talpoors and to gain friends for Lahore while Colonel Pottinger was winning allies for the English ‡ But he perceived that the Governor General had resolved upon his course, and he gave his assent to the common use of the Sutlej and Indus and to the residence of a British officer at Mithenkot to superintend the navigation.§

* This argument was continually used by Runjeet Singh See for instance Capt. Wade to Government, 15th Jan. 1837

† Capt. Wade to Government, 1st and 13th Feb 1832

‡ Capt. Wade to Government, 21st Dec., 1831 and Col Pottinger to Government, 23rd Sept. 1837

§ See Appendices, XII and XIII A tariff on goods was at first talked of, but subsequently a toll on boats was preferred From the Himalayas to the sea the whole toll was fixed at 570 rupees, of which the Lahore government got Rs 155 4, 0 for territories on the right bank, and Rs. 39, 5, 1 for territories on the left bank of the Sutlej. (Government to Capt. Wade, 9th June, 1834, and Capt. Wade to Government, 15th Dec. 1835)

He did not desire to appear as if in opposition to his allies of many years, but he did not seek to conceal from Captain Wade his opinion that the commercial measures of the English had really abridged his political power, when he gave up for the time the intention of seizing Shikarpoor *

The connection of the English with the nations of the Indus was about to be rendered more complicated by the revived hopes of Shah Shooja That ill-fated king had taken up his abode, as before related, at Loodiana, in the year 1821, and he brooded at his leisure over schemes for the reconquest of Khorassan. In 1826 he was in correspondence with Runjeet Singh, who ever regretted that the Shah was not his guest or his prisoner † In 1827 he made propositions to the British Government, and he was told that he was welcome to recover his kingdom with the aid of Runjeet Singh, or of the Sindhians, but that, if he failed, his present hosts might not again receive him ‡ In 1829 the Shah was induced, by the strange state of affairs in Peshawur consequent on Syed Ahmed's ascendancy, to suggest to Runjeet Singh that, with Sikh aid, he could readily master it, and reign once more an independent sovereign The Muharaja amused him with vain hopes, but the English repeated their warning, and the ex-king's hopes soon fell § In 1831 they again rose, for the Talpoor Ameers disliked the approach of English envoys, and they gave encouragement to the tenders of

* Capt Wade to Government, 13th Feb 1832

† Capt Wade to the Resident at Delhi, 25th July, 1826.

‡ Resident at Delhi to Capt Wade, 25th July, 1827

§ Government to Resident at Delhi, 12th June, 1829

their titular monarch * Negotiations were reopenep with Runjeet Singh, who was likewise out of humor with the English about Sindh and he was not unwilling to aid the Shah in the recovery of his rightful throne but the views of the Sikh reached to the Persian frontier as well as to the shores of the ocean and he suggested that it would be well if the slaughter of kine were prohibited throughout Afghanistan and if the gates of Somnath were restored to their original temple. The Shah was not prepared for these concessions and he evaded them by reminding the Muharaja that his chosen allies the English freely took the lives of cows and that a prophecy foreboded the downfall of the Sikh empire on the removal of the gates from Ghuznee.†

In 1832 a rumored advance of the Persians against Heerat gave further encouragement to Shah Shooja in his designs ‡ Tne perplexed Ameers of Sindh offered him assistance if he would relinquish his supremacy

* Capt. Wade to Government, 9th Sept., 1831

† Capt Wade to Government, 21st Nov., 1831 —Considering the ridicule occasioned by the subsequent removal by the English of these traditional gates, it may gratify the approvers and originators of that measure to know that they *were* of some local impo tance. When the author was at Buhawulpoor in 1845 a number of Afghan merchants came to ask him whether their restoration could be brought about—for the repute of the fane (a tomb made a temple by superstition), and the income of its peer or saint, had much declined. They would carefully convey them back, they said, and they added that they understood the Hindoos did not want them, and that of course they could be of no value to the Christians!

‡ Government to Capt. W de 19th Oct., 1832.

and the Shah promised acquiescence if he succeeded.* To Runjeet Singh the Shah offered to waive his right to Peshawur and other districts beyond the Indus, and also to give an acquittance for the Koh-i-noor diamond, in return for assistance in men and money The Muharaja was doubtful what to do, he was willing to secure an additional title to Peshawur, but he was apprehensive of the Shah's designs, should the expedition be successful † He wished, moreover, to know the precise views of the English, and he therefore proposed that they should be parties to any engagement entered into, for he had no confidence, he said, in Afghans ‡ Each of the three parties had distinct and incompatible objects Runjeet Singh wished to get rid of the English *commercial* objections to disturbing the Ameers of Sindh, by offering to aid the rightful *political* paramount in its recovery. The ex-king thought the Muharaja really wished to get him into his power, and the project of dividing Sindh fell to the ground § The Talpoor Ameers, on their part, thought that they would save Shikarpoor by playing into the Shah's hands, and they therefore endeavoured to prevent a coalition between him and the Sikh ruler ||

The Shah could not come to any satisfactory terms with Runjeet Singh, but as his neutrality was essential, especially with regard to Shikarpoor, a treaty of alliance was entered into by which the districts beyond the Indus,

* Capt Wade to Government, 15th Sept, 1832.

† Capt. Wade to Government, 13th Dec, 1832

‡ Capt Wade to Government, 31st Dec, 1832

§ Capt Wade to Government, 9th April, 1833

|| Capt Wade to Government, 27th March, 1833.

and in the possession of the Sikhs were formally ceded to the Muharaja.* The English had also become less averse to his attempt, and he was assured that his annual stipend would be continued to his family and no warning was held out to him against returning as had before been done.† A third of his yearly allowance was even advanced to him but the political agent was at the same time desired to impress upon all people, that the British Government had no interest in the Shah's proceedings that its policy was one of complete neutrality and it was added that Dost Mahomed could be so assured in reply to a letter received from him ‡ Dost Mahomed had mastered Caubul shortly after Mahomed Azeem Khan's death and he soon learnt to become apprehensive of the English. In 1832 he cautioned the Ameers of Sindh against allowing them to establish a commercial factory in Shikarpoor as Shah Shooja would certainly soon follow to guard it with an army§ and he next sought, in the usual way to ascertain the views of the paramounts of India by entering into a correspondence with them.

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* This treaty which became the foundation of the Tripartite Treaty of 1838, was drawn up in March, 1833, and finally agreed to in August of that year (Capt. Wade to Government, 17th June, 1834)

† Government to Capt. W de, 19th Dec., 1832.

‡ Government to Capt. Faithful, Acting Political Agent, 13th Dec., 1832, and to Capt. Wade, 5th and 9th of March, 1833

§ The Buhawulpoor Memoirs state that such a recommendation was pressed by Dost Mahomed on the Ameers; the belief in the gradual conversion of "Kotees, or residencies or commercial houses, into "Chaonees," or military cantonments, having it may be inferred, become notorious as far as Caubul. Dost Mahomed's main object, however, was to keep Shah Shooja at a distance

Shah Shooja left Loodiana in the middle of February, 1833. He had with him about 200,000 rupees in treasure, and nearly 3000 armed followers.* He got a gun and some camels from Buhawul Khan, he crossed the Indus towards the middle of May, and he entered Shikarpoor without opposition. The Sindhians did not oppose him, but they rendered him no assistance, and they at last thought it better to break with him at once than to put *their* means into *his* hands for their own more assured destruction † But they were signally defeated near Shikarpoor on the 9th January, 1834, and they willingly paid 500,000 rupees in cash, and gave a promise of tribute for Shikarpoor, to get rid of the victor's presence ‡ The Shah proceeded towards Candahar, and he maintained himself in the neighborhood of that city for a few months, but, on the 1st July, he was brought to action by Dost Mahomed Khan and his brothers, and fairly routed § After many wanderings, and an appeal to Persia and to Shah Kamran, of Heerat, and also an attempt upon Shikarpoor || he

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and he always seems to have held that he was safe from the English themselves so long as Lahore remained unshaken For another instance of the extent to which the English were thought to be identified with Shah Shooja, see the *Asiatic Journal*, xix 38, as quoted by Professor Wilson in Moorcroft's *Travels*, note, p 340, vol ii

* Capt Wade to Government, 9th April, 1833

† Capt Wade to Government, 25th Aug, 1833, and the Memoirs of the Buhawulpoor Family

‡ Capt Wade to Government, 30th Jan, 1834

§ Capt Wade to Government, 25th July, 1834

|| Capt Wade to Government, 21st Oct and 29th Dec, 1834, and 6th Feb, 1835.

returned to his old asylum at Loodiana in March 1835, bringing with him about 250,000 rupees in money and valuables.*

Runjeet Singh on his part was apprehensive that Shah Shooja might set aside their treaty of alliance so he resolved to guard against the possible consequences of the ex king's probable success and to seize Peshawur before his tributaries could tender their allegiance to Caubul† A large force under the nominal command of the Muharaja s grandson Nao Nihal Singh but really led by Sirdar Hurree Singh crossed the Indus and an increased tribute of horses was demanded on the plea of the prince s presence, for the first time, at the head of an army The demand would seem to have been complied with but the citadel of Peshawur was nevertheless assaulted and taken on the 6th May 1834‡ The hollow negotiations with Sooltan Mahomed Khan are understood to have been precipitated by the impetuous Hurree Singh who openly expressed his contempt for all Afghans and did not conceal his design to carry the Sikh arms beyond Peshawur §

The Sikhs were, in the meantime, busy elsewhere as well as in Peshawur itself In 1832 Hurree Singh had finally routed the Mahometan tribes above Attok, and to better ensure their obedience he built a fort on the right side of the Indus.|| In 1834 a force was employed

* Capt. Wade to Government, 19th March 1835

† Capt. Wade to Government, 17th June, 1834.

‡ Capt. Wade to Government, 19th May 1834

§ These views of Hurree Singh s were sufficiently notorious in the Punjab some years ago, when that chief was a person before the public.

|| Capt. Wade to Government, 7th Aug 1832.

against the Afghans of Tak and Bunnoo, beyond Dera Ismaeel Khan, but a considerable detachment signally failed in an attack upon a mountain stronghold, and a chief of rank and upwards of 300 men were slain The ill-success vexed the Muharaja, and he desired his agent to explain to the British authorities the several particulars, but lest they should still be disposed to reflect upon the quality of his troops, he reminded Captain Wade that such things had happened before, that his rash officers did not wait until a breach had been effected, and that, indeed, the instance of General Gillespie and the Goorkhas at Kalungga, afforded an exact illustration of what had taken place!* In 1833 the grandson of Sunsar Chund, of Kototch, was induced to return to his country, and on his way through Loodiana he was received with considerable ceremony by the British authorities, for the fame of Sunsar Chund gave to his posterity some semblance of power and regal dignity A jagheer or fief of 50,000 rupees was conferred upon the young chief, for the Muharaja was not disposed from nature to be wantonly harsh, nor from policy to drive any one to desperation.† During the same year Runjeet Singh proposed to send a chief to Calcutta with presents for the King of England, and not improbably with the view of ascertaining the general opinion about his designs on Sindh The mission,

* Capt Wade to Government, 10th May, 1834 Dera Ismaeel Khan and the country about it was not fairly brought into order until two years afterwards (Capt Wade to Government, 7th and 13th July, 1836)

† Capt Wade to Government, 9th Oct, 1833, and 3d Jan, 1835.

under Goojer Singh Mujeetheea, finally took its departure in September, 1834, and was absent a year and a half.*

When Mr Moorcroft was in Ludakh (in 1821, &c.) the fear of Runjeet Singh was general in that country and the Sikh governor of Cashmeer had already demanded the payment of tribute;† but the weak and distant state was little molested until the new Rajas of Jummoo had obtained the government of the hill principalities between the Ravee and Jehlum and felt that their influence with Runjeet Singh was secure and commanding. In 1834 Zorawur Singh, Raja Golab Singh's commander in Kishtwar took advantage of internal disorders in Leh and declared that an estate, anciently held by the Kishtwar chief must be restored. He crossed into the southern districts, but did not reach the capital until early in 1835. He sided with one of the contending parties, deposed the reigning Raja, and set up his rebellious minister in his stead. He fixed a tribute of 30,000 rupees, he placed a garrison in the fort, he retained some districts along the northern slopes of the Himalayas, and reached Jummoo with his spoils towards the close of 1835. The dispossessed Raja complained to the Chinese authorities in Lussa but, as the tribute continued to be regularly paid by his successor no notice was taken of the usurpation. The governor of Cashmeer complained that Golab Singh's commercial regulations interfered with the regular supply of shawl wool and that matter was at once

* Capt. Wade to Government, 11th Sept., 1834, and 4th April, 1836.

† Moorcroft, *Travels* i. 420

adjusted, yet the grasping ambition of the favorites nevertheless caused Runjeet Singh some misgivings amid all their protestations of devotion and loyalty.*

But Runjeet Singh's main apprehensions were on the side of Peshawur, and his fondest hopes in the direction of Sindh. The defeat which the Ameers had sustained diminished their confidence in themselves, and when Shah Shooja returned beaten from Candahar, Noor Mahomed of Hydrabad was understood to be willing to surrender Shikarpoor to the Maharaja, on condition of his guarantee against the attempts of the ex-King.† But this pretext would not get rid of the English objection, and Runjeet Singh, moreover, had little confidence in the Sindhians. He kept, as a check over them, a representative of the expelled Kulhoras, as a pensioner on his bounty, in Rajenpoor beyond the Indus,‡ and, at once to overawe both them and the Barukzaees, he again opened a negotiation with Shah Shooja as soon as he returned to Loodiana.§ But his

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* Capt Wade to Government, 27th Jan, 1835, and Mr Vigne, *Travels in Cashmeer and Tibet*, ii 352, their statements being corrected or amplified from the author's manuscript notes. The prince Khurruk Singh became especially apprehensive of the designs of the Jummoo family. (Capt. Wade to Government, 10th Aug, 1836.)

† Capt Wade to Government, 6th Feb, 1835.

‡ Capt. Wade to Government, 17th June, 1834. Surufraz Khan, otherwise called Gholam Shah, was the Kulhora expelled by the Talpoors. He received Rajenpoor in Jagheer from Caubul, and was maintained in it by Runjeet Singh. The place was held to yield 100,000 rupees, including certain rents reserved by the state, but the district was not really worth 30,000 rupees.

§ Capt Wade to Government, 17th April, 1835, and other letters.

main difficulty was with his British allies and to prove to them the reasonableness of his discontent he would instance the secret aid which the Muzaree free booters received from the Ameers * he would again insist that Shikarpoor was a dependency of the chiefs of Khorassan † and he would hint that the river below Mithenkot was not the Indus but the Sutlej the river of the treaty —the stream which had so long given freshness and beauty to the emblematic garden of their friendship and which continued its fertilizing way to the ocean separating yet uniting the realms of the two brotherly powers of the East ! ‡

But the English had formed a treaty of navigation with Sindh and the designs of Runjeet Singh were displeasing to them. They said they could not view without regret and disapprobation the prosecution of plans of unprovoked hostility against states to which *they* were bound by ties of interest and good will § They therefore wished to dissuade Runjeet Singh against any attempt on Shikarpoor but they felt that this must be done discreetly for their object was to remain on terms of friendship with every one and to

of the same year The Maharaja still urged that the English should guarantee, as it were, Shah Shooja s moderation in success partly perhaps, because the greatness of the elder dynasty of Ahmed Shah still dwelt in the mind of the first paramount of the Sikhs, but partly also with the view of sounding his European allies as to *their* real intentions.

* Capt. Wade to Government 5th Oct 1836

† Capt Wade to Government, 15th Jan 1837

‡ Capt. Wade to Government, 5th Oct 1836

§ Government to Capt. Wade, 22d Aug 1836—This plea will

make their influence available for the preservation of the general peace.* Such were the sentiments of the English, but, in the meantime, the border disputes between the Sikhs and Sindhians were fast tending to produce a rupture. In 1833 the predatory tribe of Muzarees, lying along the right bank of the Indus, below Mithenkot, had been chastised by the Governor of Mooltan, who proposed to put a garrison in their stronghold of Rojhan, but was restrained by the Muharaja from so doing.† In 1835 the Ameers of Kheirpoor were believed to be instigating the Muzarees in their attacks on the Sikh posts, and as the tribe was regarded by the English as dependent on Sindh, although possessed of such a degree of separate existence as to warrant its mention in the commercial arrangements as being entitled to a fixed portion of the whole toll, the Ameers were informed that the English looked to them to restrain the Muzarees, so as to deprive Runjeet Singh of all pretext for interference.‡ The aggressions nevertheless continued, or were alleged to be continued, and in August, 1836, the Mooltan Governor took formal possession of Rojhan.§ In the October following the Muzarees were brought to action, and defeated, and the Sikhs occupied a fort called Ken,

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recall to mind the usual argument of the Romans for interference, viz that *their* friends were not to be molested by strangers

* Government to Capt. Wade, 22d Aug, 1836

† Capt Wade to Government, 27th May, 1835

‡ Government to Capt Wade, 27th May, 1835 and 5th Sept, 1836, and Government to Col Pottinger, 19th Sept, 1836

§ Capt Wade to Government, 29th Aug, 1836

to the south of Rojhan and beyond the proper limit of that tribe.*

Thus was Runjeet Singh gradually feeling his way by force, but the English had in the mean time, resolved to go far beyond him in diplomacy It had been determined that Captain Burnes should proceed on a commercial mission to the countries bordering on the Indus with the view of completing the reopening of that river to the traffic of the world.† But the Maharaja it was said should understand that their objects were purely mercantile, and that, indeed his aid was looked for in establishing somewhere a great entrepot of trade, such as it had once been hoped, might have been commenced at Mithenkot.‡ Yet the views of the British authorities with regard to Sindh were inevitably becoming political as well as commercial The condition of that country said the Governor General had been much thought about, and the result was a conviction that the connection with it should be drawn closer § The Ameers he continued might desire the protection of the English against Runjeet Singh, and previous negotiations which their fears or their hostility had broken off might be renewed with a view to giving them assistance and finally, it was determined that the English Government should mediate between Runjeet Singh and the Sindhians and afterwards adjust the other external relations of the Ameers when a resident should be stationed at Hydrabad.

* Capt. Wade to Government, 2d Nov., 1836

† Government to Capt Wade, 5th Sept 1836.

‡ Government to Capt Wade, 5th Sept., 1836.

§ Government to Col. Pottinger 26th Sept., 1836.

With regard to Runjeet Singh, the English rulers observed that they were bound by the strongest considerations of political interest to prevent the extension of the Sikh power along the course of the Indus, and that, although they would respect the acknowledged territories of the Muharaja, they desired that his existing relations of peace should not be disturbed, for, if war took place, the Indus would never be opened to commerce. The political agent was directed to use every means short of menace to induce Runjeet Singh to abandon his designs against Shikarpoor, and Shah Shooja, whose hopes were still great, and whose negotiations were still talked of, was to be told that if he left Loodiana he must not return, and that the maintenance for his family would be at once discontinued. With regard to the Muzarees, whose lands had been actually occupied by the Sikhs, it was said that their reduction had effected an object of general benefit, and that the question of their permanent control could be determined at a future period.*

The Sindhians, on their part, complained that the fort of Ken had been occupied, and in reply to Runjeet Singh's demand that their annual complimentary or prudential offerings should be increased, or that a large sum should be paid for the restoration of their captured fort, they avowed their determination to resort to arms.† Nor can there be any doubt that Sindh would have been invaded by the Sikhs, had not Colonel Pottinger's negotiations for their protection deterred the Muharaja

* Government to Capt Wade, 26th Sept., 1836

† Capt. Wade to Government, 2d Nov. and 13th Dec., 1836.

from an act which he apprehended the English might seize upon to declare *their* alliance at an end The princes Khurruk Singh and Nao Nihal Singh were each on the Indus at the head of considerable armies and the remonstrances of the British political agent alone detained the Muharaja himself at Lahore Nevertheless so evenly were peace and war balanced in Runjeet Singh s mind that Captain Wade thought it advisable to proceed to his capital to explain to him in person the risks he would incur by acting in open opposition to the British Government. He listened and at last yielded His deference he said to the wishes of his allies took place of every other consideration he would let his relations with the Ameers of Sindh remain on their old footing he would destroy the fort of Ken, but he would continue to occupy Rojhan and the Muzaree territory * Runjeet Singh was urged by his chiefs not to yield to the demands of the English for to their understanding it was not clear where such demands would stop but he shook his head and asked them what had become of the two hundred thousand spears of the Mahrattas †—and as if to show how completely he professed to forget or forgive the check imposed on him he invited the Governor General to be present at Lahore on the occasion of the marriage of the grandson whom he had hoped to hail as the conqueror of Sindh.‡

* Capt. Wade to Government, 3d Jan., 1837

† Compare Capt. Wade to Government, 11th Jan., 1837 Runjeet Singh not unfrequently referred to the overthrow of the Mahratta power as a reason for remaining under all and any circumstances, on good terms with his European allies

‡ Capt. Wade to Government, 5th Jan., 1837.

Nevertheless he continued to entertain a hope that his objects might one day be attained, he avoided a distinct settlement of the boundary with the Ameers, and of the question of supremacy over the Muzarees* Neither was he disposed to relinquish Rojhan, the place remained a Sikh possession, and it may be regarded to have become formally such by the submission of the chief of the tribe in the year 1838†

It is now necessary to go back for some years to trace the connection of the English Government with the Barukzaee rulers of Afghanistan Mahomed Azeem Khan died in 1823, as has been mentioned, immediately after Peshawur became tributary to the Sikhs His son Hubeboolla nominally succeeded to the supremacy which Futteh Khan and Mahomed Azeem had both exercised, but it soon become evident that the mind of the youth was unsettled, and his violent proceedings enabled his crafty and unscrupulous uncle, Dost Mahomed Khan, to seize Caubul, Ghuznee, and Jellalabad as his own, while a second set of his brothers held Candahar in virtual independence, and a third governed Peshawur as the tributaries of Runjeet Singh‡ In the year 1824, Mr Moorcroft, the traveller, was upon the whole well-satisfied with the treatment he received from the Barukzaees, although their patronage cost him money§ A few years afterwards Sooltan Mahomed

* Capt Wade to Government, 13th and 15th Feb, 8th July and 10th Aug, 1837

† Capt Wade to Government, 9th Jan, 1838

‡ Compare Moorcroft, *Travels*, ii 345, &c, and Moonshee Mohun Lal, *Life of Dost Mohomed Khan*, i 130, 153 &c

§ Moorcroft, *Travels*, ii 346, 347

Khan of Peshawur who had most to fear from strangers, opened a communication with the political agent at Loodiana,* and in 1829 he wished to negotiate as an independent chief with the British Government.† But the several brothers were jealous of one another many desired separate principalities, Dost Mahomed aimed at supremacy, rumors of Persian designs alarmed them on the west, the aggressive policy of Runjeet Singh gave them greater cause of fear on the east, and the chance presence of English travellers in Afghanistan again led them to hope that the foreign masters of India might be induced to give them stability between contending powers ‡ In 1832 Sooltan Mahomed Khan again attempted to open a negotiation if only for the release of his son, who was a hostage with Runjeet Singh § The Nuwab Jubbar Khan of Caubul likewise addressed letters to the British frontier authority, and in 1832 Dost Mahomed himself directly asked for

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* Capt. Wade to the Resident at Delhi, 21st April 1828.

† Capt Wade to Government 19th May 1832. The brothers had already (1823 1824) made similar proposals through Mr *Moorcroft. (See Travels ii, 340.)*

‡ Mr Fraser and Mr Stirling of the Bengal civil service were in Afghanistan the former in 1826, apparently and the latter in 1828. Mr Masson also entered the country by way of the Lower Punjab, in 1827 and the American, Dr Harlan, followed him in a year by the same route. Dr Harlan came to Lahore in 1829 after leading the English authorities to believe that he desired to constitute himself an agent between their Government and Shah Shooja with reference doubtless to the ex King's designs on Caubul. *(Resident at Delhi to Capt. Wade, 3d Feb., 1829.)*

§ Capt Wade to Government, 19th May, and 3d July 1832.

the friendship of the English.* All these communications were politely acknowledged, but at the time it was held desirable to avoid all intimacy of connection with rulers so remote.†

In 1834 new dangers threatened the usurping Barukzaees. Shah Shooja had defeated the Sindhians and had arrived in force at Candahar, and the brothers once again endeavored to bring themselves within the verge of British supremacy. They had heard of English arts as well as of English arms, they knew that all were accessible of flattery, and Jubbar Khan suddenly proposed to send his son to Loodiana, in order, he said, that his mind might be improved by European science and civilization.‡ But Jubbar Khan, while he appeared to adhere to Dost Mahomed rather than to others, had nevertheless an ambition of his own, and he was more than suspected of a wish to make his admiration of the amenities of English life the means of acquiring political power.§ Thus, doubtful of all about him, Dost Mahomed left Caubul to oppose Shah Shooja, but the Sikhs had, in the meantime, occupied Peshawur, and the perplexed ruler grasped once more at British aid as his only sure resource.|| He tendered his submission as a dependent of Great Britain, and having thus endeavored to put his dominions in trust, he gave Shah

* Capt Wade to Government, 9th July, 1832, and 17th Jan, 1833

† Government to Capt Wade, 28th Feb, 1833.

‡ Capt Wade to Government, 9th March, 1834.

§ Capt Wade to Government, 17th May, 1834 Compare Masson, *Journeys*, iii 218, 220

|| Capt Wade to Government, 17th June, 1834.

Shooja battle. But the Shah was defeated and the rejoicing victor forgot his difficulties He declared war against the Sikhs on account of their capture of Peshawur and he endeavored to make it a religious contest by rousing the population generally to destroy infidel invaders.* He assumed the proud distinction of Ghazee or champion of the faith and the vague title of "Ameer which he interpreted "the noble for he did not care to wholly offend his brothers, whose submission he desired and whose assistance was necessary to him.†

Dost Mahomed Khan amid all his exultation, was still willing to use the intervention of unbelievers as well as the arms of the faithful, and he asked the English masters of India to help him in recovering Peshawur.‡ The youth who had been sent to Loodiana to become a student, was invested with the powers of a diplomatist, and the Ameer sought to prejudice the British authorities against the Sikhs by urging that *his* nephew and *their* guest had been treated with suspicion and had suffered restraint on his way across the Punjab But the English had not yet thought of requiring him to be an ally for purposes of their own and Dost Mahomed was simply assured that the son of Nuwab Jubbar Khan should be well taken care of on the eastern side of the Sutlej A direct reply to his solicitation was avoided by enlarging on the partial truth that the Afghans were a commercial people

* Capt. Wade to Government, 5th Sept, 1834.

† Capt. Wade to Government, 27th Jan 1835

‡ Capt. Wade to Government, 4th Jan. and 19th Feb., 1835.

equally with the English, and on the favorite scheme of the great traffickers of the world, the opening of the Indus to commerce. It was hoped, it was added, that the new impulse given to trade would better help the two governments to cultivate a profitable friendship, and the wondering Ameer, full of warlike schemes, was naively asked, whether he had any suggestions to offer about a direct route for merchandize between Caubul and the great boundary river of the Afghans!* The English rulers had also to reply to Runjeet Singh, who was naturally suspicious of the increasing intimacy between his allies and his enemies, and who desired that the European lords might appear rather as his than as Dost Mahomed's supporters, but the Governor-General observed that any endeavors to mediate would lead to consequences seriously embarrassing, and that Dost Mahomed would seem to have interpreted general professions of amity into promises of assistance †

The two parties were thus left to their own means, Runjeet Singh began by detaching Sooltan Mahomed Khan from the Ameer, with whom he had sought a refuge on the occupation of Peshawur by the Sikhs, and the ejected tributary listened the more readily to the Muharaja's propositions, as he apprehended that Dost Mahomed would retain Peshawur for himself, should Runjeet Singh be beaten Dost Mahomed came to the

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* Government to Capt Wade, 19th April, 1834, and 11th Feb, 1835 Abdool Ghejas Khan reached Loodiana in June, 1834, and the original intention of sending him to study at Delhi, was abandoned

† Government to Capt. Wade, 20th April, 1835.

eastern entrance of the Khyber Pass, and Runjeet Singh amused him with proposals until he had concentrated his forces. On the 11th of May, 1835 the Ameer was almost surrounded He was to have been attacked on the 12th, but he thought it prudent to retreat which he did with the loss of two guns and some baggage. He had designed to carry off the Sikh envoys and to profit by their presence as hostages or as prisoners but his brother, Sooltan Mahomed Khan to whom the execution of the project had been entrusted, had determined on joining Runjeet Singh, and the rescue of the agents gave him a favorable introduction to the victor Sooltan Mahomed and his brothers had considerable Jagheers conferred on them in the Peshawur district, but the military control and civil management of the province was vested solely in an officer appointed from Lahore.*

Dost Mahomed suffered much in general estimation by withdrawing from an encounter with the Sikh His hopes in the English had not borne fruit and he was disposed to court Persia ;† but the connection was of less political credit and utility than one with the English and he tried once more to move the Governor

* Capt. Wade to Government, 25th April, and 1st, 15th, and 19th May, 1835 Compare *Masson, Journeys*, iii. 342, &c *Mohun Lal's Life of Dost Mahomed* i 172 &c.; and also *Dr Harlan's India and Afghanistan*, p. 124 158. Dr Harlan himself was one of the envoys sent to Dost Mahomed on the occasion.

The Sikhs are commonly said to have had 80,000 men in the Peshawur valley at this time.

† Capt. Wade to Government, 23rd Feb., 1836. Dost Mahomed's overtures to Persia seem to have commenced in Sept., 1835

General in his favour The Sikhs, he said, were faithless, and he was wholly devoted to the interests of the British Government * The Candahar brothers, also, being pressed by Shah Kamran of Heerat, and unable to obtain aid from Dost Mahomed, made propositions to the English authorities, but Kamran's own apprehensions of Persia soon relieved them of their fears, and they did not press their solicitations for European aid † Runjeet Singh, on his part, disliked an English and Afghan alliance, and sought to draw Dost Mahomed within the vortex of *his own influence* He gave the Ameer vague hopes of obtaining Peshawur, and he asked him to send him some horses, which he had learnt was a sure way of leading others to believe they had won his favour Dost Mahomed was not unwilling to obtain a hold on Peshawur, even as a tributary, but he felt that the presentation of horses would be declared by the Sikh to refer to Caubul and not to that province ‡ The disgrace of his retreat rankled in his mind, and he at last said that a battle must be fought at all risks § He was the more inclined to resort to arms, as the Sikhs had sounded his brother, Jubbar Khan and as Sirdar Hurree Singh had occupied the entrance of the Khyber Pass and entrenched a position at Jumrood, as the basis of his scheme for getting through the formidable defile || The Caubul troops marched and

* Capt Wade to Government, 19th July, 1836
† Capt Wade to Government, 9th March, 1836
‡ Capt Wade to Government, 12th April, 1837
§ Capt Wade to Government, 1st May, 1837
|| Capt Wade to Government, 13th Jan , 1837

assembled on the eastern side of Khyber, under the command of Mahomed Akber Khan the most warlike of the Ameer's sons. An attack was made on the post at Jumrood on the 30th of April 1837 but the Afghans could not carry it, although they threw the Sikhs into disorder Hurree Singh, by feigning a retreat, drew the enemy more fully into the plains, the brave leader was present every where amid his retiring and rallying masses but he fell mortally wounded, and the opportune arrival of another portion of the Caubul forces converted the confusion of the Sikhs into a total defeat. But two guns only were lost the Afghans could not master Jumrood or Peshwar itself, and after plundering the valley for a few days, they retreated rather than risk a second battle with the reinforced army of Lahore. *

The death of Hurree Singh and the defeat of his army caused some anxiety in Lahore but the Maharaja promptly roused his people to exertion, and all readily responded to his call. It is stated that field guns were dragged from Ramnaggur on the Chenab to Peshawur in six days a distance, by road of more

* Capt. Wade to Government, 13th and 23rd May and 5th July 1837 Compare Masson, *Journeys* iii. 382, 387 and Mohun Lal's *Life of Dost Mahomed*, i 226 &c

It seems that the Afghans were at first routed or repulsed with the loss of some guns, but that the opportune arrival of Shum Sooddeen Khan a relation of the Ameer, with a considerable detachment turned the battle in their favor It is nevertheless believed that had not Hurree Singh been killed, the Sikhs would have retrieved the day The troops in the Peshawur valley had been considerably reduced by the withdrawal of large parties to

than two hundred miles * Runjeet Singh advanced in person to Rhotas, and the active Dhian Singh hastened to the frontier, and set an example of devotion and labor by working with his own hands on the foundations of a regular fort at Jumrood † Dost Mahomed was buoyed up by his fruitless victory, and he became more than ever desirous of recovering a province so wholly Afghan, but Runjeet Singh contrived to amuse him, and the Muharaja was found to be again in treaty with the Ameer, and again in treaty with Shah Shooja, and with both at the same time ‡ But the commercial envoy of the English had gradually sailed high up the Indus of their imaginary commerce, and to his government the time seemed to have come when political interference would no longer be embarrassing, but, on the contrary, highly advantageous to schemes of peaceful trade and beneficial intercourse It was made known that the British rulers would be glad to be the means of negotiating a peace honorable to both parties, yet the scale was turned in favor of the Afghan, by the simultaneous admission that Peshawur was a place to which

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Lahore, to make a display on the occasion of Nao Nihal Singh's marriage, and of the expected visit of the English Governor-General and Commander-in-Chief

* Lieut -Col Steinbach (*Punjab*, p 64, 68) mentions that he had himself marched with his Sikh regiment 300 miles in twelve days, and that the distance had been performed by others in eleven

† Mr Clerk's Memorandum of 1842, regarding the Sikh chiefs, drawn up for Lord Ellenborough

‡ Compare Capt Wade to Government, 3rd June, 1837, and Government to Capt Wade, 7th Aug, 1837

Dost Mahomed could scarcely be expected to resign all claim * Nevertheless it was said the wishes of Runjeet Sing could be ascertained by Captain Wade and Captain Burnes could similarly inquire about the views of the Ameer The latter officer was formally invested whith diplomatic powers † and the idle de sings or restless intrigues, of Persians and Russians, soon caused the disputes of Sikhs and Afghans to merge in the British scheme of reseating Shah Shooja on the throne of Caubul. At the end of a generation the repose of the English master of India was again disturbed by the rumored march of European armies ‡ and their suspicions were further roused by the conduct of the French General Allard That officer after a residence of several years in the Punjab had been enabled to visit his native country and he returned by way of Calcutta in the year 1836 While in France he had induced his government to give him a document, accrediting him to Runjeet Sing in case his life should be endangered or in case he should be refused permission to quit the Lahore dominions. It was un derstood by the English that the paper was only to be produced to the *Maharaja* in an extremity of the kind mentioned but General Allard himself considered that

* Government to Capt Wade, 31st July 1837

† Government to Capt. Wade, 11th Sept 1837

‡ The idea of Russian designs on India engaged the attention of the British Viceroy in 1831 (see Murray's *Runjeet Singh*, by Prinsep, p 168), and it at the same time possessed the inquiring but sanguine mind of Capt. Burnes, who afterwards gave the notion so much notoriety (See Capt. Wade to Government, 3rd Aug 1831)

Sing Atareewala, in the beginning of March 1837 but of the English authorities Sir Henry Fane alone was able to attend. That able commander was ever a careful observer of military means and of soldierly qualities he formed an estimate of the force which would be required for the complete subjugation of the Punjab but at the same time he laid it down as a principle, that the Sutlej and the wastes of Rajputana and Sindh were the best boundaries which the English could have in the east.* The prospect of a war with the Sikhs was then remote, and hostile desings could not with honor be entertained by a guest. Sir Henry Fane, therefore, entered heartily into the marriage festivities of Lahore, and his active mind was amused with giving shape to a scheme, which the intuitive sagacity of Runjeet Singh had acquiesced in a pleasing to the just pride or useful vanity of English soldiers. The project of establishing an Order of Merit similar to those dying exponents of warlike skill and chivalrous fraternity among European nations, had been for some time entertained, and although such a system of distinction can be adapted to the genius of any people, the object

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* These views of Sir Henry Fane's may not be on record but they were well known to those about his Excellency His estimate was, as I remember to have heard from Capt. Wade, 67,000 men, and he thought there might be a two years' active warfare.

This visit to Lahore was perhaps mainly useful in enabling Lieut Col Garden the indefatigable Quarter master General of the Bengal army to compile a detailed map of that part of the country and which formed the groundwork of all the maps used when hostilities did at last break out with the Sikhs.

of the Muharaja was simply to gratify his English neighbors, and advantage was accordingly taken of Sir Henry Fane's presence to establish the "Order of the auspicious Star of the Punjab" on a purely British model.* This method of pleasing, or occupying the attention of the English authorities, was not unusual with Runjeet Singh, and he was always ready to inquire concerning matters which interested them, or which might be turned to account by himself. He would ask for specimens of, and for information about, the manufacture of Sambhur salt and Malwa opium.† So early as 1812 he had made trial of the sincerity of his new allies, or had shown his admiration of their skill, by asking for five hundred muskets. These were at once furnished to him, but a subsequent request for a supply of fifty thousand such weapons, excited a passing suspicion‡ He readily entered into a scheme of freighting a number of boats with merchandize for Bombay, and he was praised for the interest he took in commerce, until it was known that he wished the returned cargo to consist of arms for his infantry.§ He would have his artillerymen learn gunnery at Loodiana,|| and he would send shells of zinc to be inspected in the hope that he might receive some hints about the manufacture of iron shrapnells.¶ He would inquire about the details of

* Capt Wade to Government, 7th April, 1837

† Capt Wade to the Resident at Delhi, 2nd Jan, 1831, and to Government, 25th Dec, 1835

‡ Capt Wade to Government 22nd July, 1836

§ Compare Government to Capt Wade, 11th Sept., 1837

|| Capt Wade to Government, 7th Dec., 1831.

¶ When the restoration of Shah Shooja was resolved on, Runjeet Singh sent shells to Loodiana to be looked at and commented

European warfare, and he sought for copies of the pay regulations of the Indian army and of the English practice of courts martial, and bestowed dresses of honour on the translator of these complicated and inapplicable systems,* while, to further satisfy himself he would ask what punishment had been found an efficient substitute for flogging † He sent a lad the relation of one of his chiefs to learn English at the Loodiana school, in order he said that the youth might aid him in his correspondence with the British Government which Lord William Bentink had wished to carry on the English tongue instead of in Persian ‡ and he sent a number of young men to learn something of medicine at the Loodiana dispensary which had been set on foot by the political agent—but in order the Maharaja said that they might be useful in his battalions.§ In such ways half serious, half idle, did Runjeet Singh endeavor to

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on, as if, being engaged in one political cause, there should not be any reserve about military secrets!

* Major Hough, who has added to the reputation of the Indian army by his useful publications, put the practice of courts martial into a Sikh dress for Runjeet Singh (Government to Capt. Wade 21st November 1834)

† Government to Capt. Wade, 18th May 1835, intimating that solitary confinement had been found a good substitute.

‡ Capt. Wade to Government, 11th April 1835 Some of the Princes of India, all of whom are ever prone to suspicion were not without a belief that, by writing in English, it was designed to keep them in ignorance of the real views and declarations of their paramount.

§ Some of these young men were employed with the force raised at Peshawur in 1839, to enable Prince Tymoor to march through Khyber

ingratiate himself with the representatives of a power he could not withstand and never wholly trusted.

Runjeet Singh's rejoicings over the marriage and youthful promise of his grandson were rudely interrupted by the success of the Afghans at Jumrood, and the death of his able leader Hurree Singh, as has been already related. The old man was moved to tears when he heard of the fate of the only genuine Sikh chief of his creation; * and he had scarcely vindicated his supremacy on the frontier, by filling the valley of Peshawur with troops, when the English interfered to embitter the short remainder of his life, and to set bounds to his ambition on the west, as they had already done on the east and south. The commercial policy of the British people required that peace and industry should at once be introduced among the half-barbarous tribes of Sindh, Khorassan, and the Punjab; and it was vainly sought to give fixed limits to newly-founded feudal governments, and to impress moderation of desire upon grasping military sovereigns. It was wished that Runjeet Singh should be content with his past achievements; that the Ameers of Sindh, and the Chiefs of Heerat, Candahar, and Caubul should feel themselves secure in what they held, but incapable of obtaining more; and that the restless Shah Shooja should quietly abandon all hope of regaining the crown of his daily dreams † These were the views which

* Capt Wade to Government, 13th May, 1837, quoting Dr Wood, a surgeon in the British army, temporarily deputed to attend on Runjeet Singh and who was with his camp at Rhotas on this occasion

† Compare Government to Capt. Wade, 13th Nov., 1837, and

English Viceroy required his agents to impress on lpoors, Barukzaees, and Sikhs and their imprac ıbility might have quietly and harmlessly become ɔarent, had not Russia found reason and opportunity push her intrigues, through Persia and Toorkistan the banks of the Indus.* The desire of effecting a onciliation between Runjeet Singh and Dost Ma ned induced the British Government to offer its diation † the predilections of its frank and enter sing envoy led him to seize upon the admission that Ameer could scarcely be expected to resign all pre sions to Peshawur.‡ The crafty chief made use of

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:apt. Burnes and capt. Wade, both of the 20th January 1838. h regard to Sindh, also, the views of Runjeet Singh were not l to be pleasing and the terms of his communication with the eers were thought equivocal, or denotative of a reservation, or he expression of a right he did not possess. (Government to ıt. Wade, 25th Sept., and 13th Nov., 1837)

* Without reference to the settled policy of Russia, or to what may always have thought of the virtual support which Eng l gives to Persia and Turkey against her power the presence ıquiring agents in Khorassan and Toorkistan, and the pro- ssive extension of the British Indian dominion, must have put on the alert, if they did not fill her with reasonable suspicions.

† Government to Capt. Wade, 31st July 1837

‡ These predilections of Sir Alex. Burnes, and the hopes nded on them by Dost Mahomed, were sufficiently notorious to ·se in personal communication with that valuable poineer of the glish and his strong wish to recover Peshawur at least for ɔltan Mahomed Khan, is distinctly stated in his own words, in .sson's *Journeys* (iii. 423). The idea of taking the district from Sikhs, either for Dost Mahomed or his brothers, is moreover ɔarent from Sir Alex. Burnes' published letters, of 5th Oct. 17 and 26th Jan and 15th March, 1838 (Parliamentary Papers

this partiality, and of the fact that his friendship was courted, to try and secure himself against the only power he really feared, viz. that of the Sikhs, and he renewed his overtures to Persia and welcomed a Russian emissary, with the view of intimidating the English into the surrender of Peshawur, and into a guarantee against Runjeet Singh. Friendly assurances to the Candahar brothers, and a hint that the Sikhs were at liberty to march on Caubul, would have given Dost Mahomed a proper sense of his insignificance;* but the truth and the importance of his hostile designs were both believed or assumed by the British Government, while the rumors of northern invasion were eagerly received and industriously spread by the vanquished Princes of India, and the whole country vibrated with the hope that the uncongenial domination of the English was about to yield to the ascendancy of another and less dissimilar race.† The recall of Captain

1839), from the Government replies of remark and caution, dated 20th Jan., and especially of 27th April, 1838, and from Mr Masson's statements (*Journeys*, iii 423, 448) Mr Masson himself thought it would be but justice to restore the district to Sooltan Mohamed Khan, while Moonshee Mohun Lal (*Life of Dost Mohomed*, i 257, &c) represents the Ameer to have thought that the surrender of Peshawur to his brother, would have been more prejudicial to his interests than its retention by the Sikhs

* Such were Capt Wade's views, and they are sketched in his letters of the 15th May, and 28th Oct., 1837, with reference to commercial objects, although the line of policy may not have been steadily adhered to, or fully developed

† The extent to which this feeling was prevalent is known to those who were observers of Indian affairs at the time, and it is dwelt upon in the Governor-General's minute of the 20th Aug., 1839

Burnes from Caubul gave spaciousness to the wildest statements, the advantage of striking some great blow became more and more obvious for the sake of consistency it was necessary to maintain peace on the Indus, and it was wisely resolved to make a triumphant progress through Central Asia and to leave Shah Shooja as a dependent Prince on his ancestral throne. The conception was bold and perfect and had it been steadily adhered to, the whole project would have eminently answered the ends intended, and would have been in every way, worthy of the English name.*

In the beginning of 1838 the Governor General did not contemplate the restoration of Shah Shooja † but in four months the scheme was adopted, and in May of that year Sir William Macnaghten was sent to Runjeet Singh to unfold the views of the British Government.‡

* The Governor-General's minute of 12th May, 1838, and his declaration of the 1st October of the same year, may be referred to as summing up the views which moved the British Government on the occasion Both were published by order of Parliament in March, 1839.

† Government to Capt. Wade, 20th January 1838.

‡ The proximate cause of the resolution to restore Shah Shooja, was, of course, the preference given by Dost Mahomed to a Persian and Russian over a British alliance, and the immediate object of deputing Sir W Macnaghten to Lahore, was to make Runjeet Singh as much as possible a party to the policy adopted. (See, among other letters, Government to Capt. Wade 15th May, 1838) The deputation crossed into the Punjab at Rooper on the 20th May It remained some time at Adeenanuggar and afterwards went to Lahore. The first interview with Runjeet Singh was on the 31st May the last on the 13th July Sir William

The Muharaja grasped at the first idea which presented itself, of making use of the Shah at the head of *his* armies, with the proclaimed support of the paramount power in India, but he disliked the complete view of the scheme, and the active co-operation of his old allies. It chafed him that he was to resign all hope of Shikarpoor, and that he was to be inclosed within the iron arms of the English rule. He suddenly broke up his camp at Adeenuggur, leaving the British envoys to follow at their leisure, or to return, if they pleased, to Simlah and it was not until he was told the expedition would be undertaken whether he chose to share in it or not, that he assented to a modification of his own treaty with Shah Shooja, and that the triple alliance was formed for the subversion of the power of the Barukzaees.* The English, on their part, insisted on a double

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Macnaghten recrossed the Sutlej at Loodiana on the 15th July and on that and the following day he arranged with Shah Shooja in person the terms of his restoration

Two months before the deputation waited upon Runjeet Singh, he had visited Jummoo for apparently the first time in his life, and the same may be regarded as the last in which the worn-out Prince tasted of unalloyed happiness Golab Singh received his sovereign with every demonstration of loyalty, and, bowing to the Muharaja's feet, he laid before him presents worth nearly forty thousand pounds, saying he was the humblest of his slaves, and the most grateful of those on whom he had heaped favors Runjeet Singh shed tears, but afterwards pertinently observed that, in Jummoo, gold might be seen where formerly there was nought but stones (Major Mackeson's letter to Capt. Wade, 31st March, 1838)

* That Runjeet Singh was told he would be left out if he did not choose to come in, does not appear on public record. It was, however the only convincing argument used during the long

invasion of Afghanistan first, because the Ameers of Sindh disliked a proffered treaty of alliance or dependence, and they could conveniently be coerced as tributaries by Shah Shooja on his way to Candahar and secondly because it was not deemed prudent to place the ex King in the hands of Runjeet Singh, who might be tempted to use him for Sikh rather than for British objects.* It was therefore arranged that the Shah himself should march by way of Shikarpoor and Quetta while his son moved on Caubul by the road of Peshawur and at the head of a force provided by the Maharaja of the Punjab. The British force assembled at Feerozpoor towards the close of 1838 and further eclat

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discussions, and I think Major Mackeson was made the bearer of the message to that effect.

* Compare the Governor General's minute of 12th of May 1838, and his instructions to Sir William Macnaghten of the 15th of the same month Runjeet Singh was anxious to get something lasting and tangible as his share of the profit of the expedition, and he wanted Jellalabad, as there seemed to be a difficulty about Shikarpoor The Maharaja got, indeed, a subsidy of two hundred thousand rupees a year from the Shah for the use of his troops a concession which did not altogether satisfy the Governor General (see letter to Sir William Macnaghten, 2nd July 1838), and the article became, in fact, a dead letter.

The idea of creating a friendly power in Afghanistan, by guiding Runjeet Singh upon Caubul, seems to have been seriously entertained, and it was a scheme which promised many solid advantages Compare the Governor General's minute, 12th May 1838, the author's abstract of which differs somewhat from the copy printed by order of Parliament in 1839, and Mr Masson (*Journeys* iii. 487 488) who refers to a communication for Sir William Macnaghten on the subject. For the treaty about the restoration of Shah Shooja, see Appendix XIV

was given to the opening of a memorable campaign, by an interchange of hospitalities between the English Viceroy and the Shikh Ruler.* Ostensibly Runjeet Singh had reached the summit of his ambition, he was acknowledged to be an arbiter in the fate of that empire which had tyrannized over his peasant forefathers, and he was treated with he greatest distinction by the foreign paramounts of India · but his health had become seriously impaired, he felt that he was in truth fairly in collision with the English, and he became indifferent about the careful fulfilment of the engagements into which he had entered. Shazada Tymoor marched from Lahore in January, 1839, accompanied by Colonel Wade as the British representative, but it was with difficulty the stipulated auxiliary force was got together at Peshawur, and although a considerable army at last encamped in the valley, the commander, the Muharaja's grandson, thwarted the negotiations of Prince Tymoor and the English agent, endeavoring to gain friends

* At one of the several meetings which took place on this occasion, there was an interchange of compliments, which may be noticed Runjeet Singh likened the friendship of the two states to an apple, the red and yellow colors of which were, he said, so blended, that although the semblance was twofold, the reality was one Lord Auckland replied that the Muharaja's simile was very happy, inasmuch as red and yellow were the national colors of the English and Sikhs respectively, to which Runjeet Singh rejoined in the same strain that the comparison was indeed in every way appropriate, for the friendship of the two powers was, like the apple, fair and delicious The translations were given in English and Oordoo with elegance and emphasis by Sir William Macnaghten and Fukeer Uzeezooddeen, both of whom were masters, although in different ways, of language, whether written or spoken.

for Lahore rather than for the *proclaimed sovereign* of the Afghans.* Runjeet Singh's health continued to decline. He heard of the fall of Candahar in April and the delay at that place may have served to cheer his vexed spirit with the hope that the English would yet be baffled, but he died on the 27th of June, at the age of fifty nine, before the capture of Ghuznee and the occupation of Caubul and the forcing of the Khyber Pass with the aid of his own troops, placed the seal of success on a campaign in which he was an unwilling sharer

Runjeet Singh found the Punjab a waning confederacy a prey to the factions of its chiefs, pressed by the Afghans and the Maharattas, and ready to submit to English surpremacy He consolidated the numerous petty states into a kingdom, he wrested from Caubul the fairest of its provinces, and he gave the potent English no cause for interference. He found the military array of his country a mass of horsemen brave indeed but ignorant of war as an art, and he left it mustering fifty thousand disciplined soldiers fifty thousand well armed yeomanry and militia and more than three hundred pieces of cannon for the field His rule was founded on the feelings of a people, but it inovlved the joint action of the necessary principles of military order and territorial extention, and when a limit had been set to Sikh dominion and his own

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* See, among other letters, Capt Wade to Government 18th Aug., 1839. For some interesting details regarding Cap Wade's military proceedings, see Lieut Barr's published *Journal* and for the diplomatic history so to speak, of his mission, see Moonshee Shahamut Alee's *Sikhs and Afghans.*

commanding genius was no more, the vital spirit of his race began to consume itself in domestic contentions *

When Runjeet Singh was Lord Auckland's host at Lahore and Amritsir, his utterance was difficult, and the power of his body feeble, he gradually lost the use of his speech, and of the faculties of his mind, and, before his death, the Rajas of Jummoo had usurped to themselves the whole of the functions of Government, which the absence of Nao Nihal Singh enabled them to do with little difficulty The army was assembled, and a litter, said to contain the dying Muharaja, was carried along the extended line Dhian Singh was

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* In 1831, Capt. Murray estimated the Sikh revenue at little more than 2½ millions sterling, and the army at 82,000 men, including 15,000 were regular infantry and 376 guns (Murray's *Runjeet Singh*, by Prinsep, p 185, 186) In the same year Capt Burnes (*Travel*, i 289 291), gives the revenue at 2½ millions, and the army at 75,000, including 25,000 regular infantry Mr Masson (*Journeys*, i 430) gives the same revenue, but fixes the army at 70,000 men, of whom 20,000 were disciplined This may be assumed as an estimate of 1838, when Mr Masson returned from Caubul In 1845 Lieut-Col Steinbach (*Punjab*, p 58) states the army to have amounted to 110,000 men, of whom 70,000 were regulars The returns procured for Government in in 1844, and which cannot be far wrong, show that there were upwards of 40,000 regularly drilled infantry, and a force of about 125,000 men in all, maintained with about 375 guns or field carriages Compare the *Calcutta Review*, iii 176, Dr Macgregor's *Sikhs*, ii 86, and Major Smith's *Reigning Family of Lahore*, appendices, p xxxvii for estimates, correct in some particulars, and moderate in others

For a statement of the Lahore revenues, see Appendix XXII, and for a list of the Lahore army, see Appendix XXIII.

assiduous in his mournful attentions, he seemed to take orders as if from his departing sovereign, and from time to time, during the solemn procession he made known that Runjeet Sing declared the Prince Khurruk Singh his successor, and himself Dhian Singh the vuzeer or minister of the kingdom.* The soldiery acquiesced in silence, and the British Government was perhaps more sincere than the Sikh people in the congratulations offered agreeable to custom to the new and unworthy master of the Punjab.†

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* Mr Clerk's memorandum of 1842 for Lord Ellenborough.

† Many descriptions of Runjeet Singh's person and manners have been written, of which the fullest is perhaps that in Prinsep's edition of Murray's *Life*, p. 178, &c. while Capt. Osborne's *Court and Camp*, and Col Lawrence's *Adventurer in the Punjab* contain many illustrative touches and anecdotes. The only good likeness of the Maharaja which has been published, is that taken by the Hon. Miss Eden and it, especially in the original drawing is true and expressive. Runjeet Singh was of small stature. When young he was dexterous in all manly exercises, but in his old age he became weak and inclined to corpulency He lost an eye when a child by the small-pox, and the most marked characteristic of his mental powers was a broad and massive forehead, which the ordinary portraits do not show

CHAPTER VIII.

FROM THE DEATH OF MUHARAJA RUNJEET SINGH, TO THE DEATH OF VUZEER JOWAHIR SINGH

1839—1845.

Khurrak Singh's power usurped by his son Nao Nihal Singh —Lieut.-Colonel Wade and Mr. Clerk.—Nao Nihal Singh and the Rajas of Jummoo.—The death of Khurruk Singh —The death of Nao Nihal Singh. —Sher Singh proclaimed Muharaja, but the authority of sovereign assumed by the mother of Nao Nihal Singh —Sher Singh gains over the troops and succeeds to power —The army assumes a voice in affairs, and becomes an organized political body —The English willing to interfere —The English undervalue the Sikhs —The Sikhs in Tibet —opposed by the Chinese, and restrained by the English —The English in Caubul —General Pollock's campaign —The Sindhanwala and Jummoo families —The death of Sher Singh —The death of Raja Dhian Singh.—Dhuleep Singh proclaimed Muharaja with Heera Singh as Vuzeer —Unsuccessful insurrections —Pundit Julla's proceedings and views. —Heera Singh expelled and slain —Jowahir Singh nominated Vuzeer.—Golab Singh submits —Peshawura Singh in rebellion —Jowahir Singh put to death by the Army

THE imbecile Khurruk Singh was acknowledged as the master of the Punjab, but Sher Singh, the reputed

son of the deceased King at once urged his superior claims or merits on the attention of the British Viceroy * and Nao Nihal Singh the real offspring of the titular sovereign, hastened from Peshawur to take upon himself the duties of ruler The Prince, a youth of eighteen was in his heart opposed to the proclaimed minister and the Rajas of Jummoo but the ascendancy of one Cheit Singh over the weak mind of the Muharaja, and Khurruk Sing's own desire of resting upon the influence of the British agent, induced the two parties to coalesce, first for the destruction of the minion, and afterwards for the removal of Colonel Wade. That officer had stood high with Runjeet Singh as a liberal construer of Sikh rights, or as one who would carefully show how a collision with the English was to be avoided he had steadily refused to make Dhian Singh the medium of his communications with the old Muharaja he had offended the heir apparent by unceremoniously accusing him of machination with Afghan chiefs and in the eyes of the Sikhs he was pledged to Khurruk Singh at all hazards by the prominent part he had taken in the meeting at Rooper before noticed. His presence was thus disliked and his interference dreaded by men not inclined to wholly yield themselves to English counsels and yet accustomed to see the

* Government to Mr Clerk, 12th July 1839. Mr Clerk, who was acting for Col. Wade while absent at Peshawur seems to have detained Sher Singh's messenger and to have sent his letter to the Governor General somewhat in that ordinary spirit of Indian correspondence, which "transmits every thing "for information and for such orders as may seem necessary Lord Auckland hastily desired Sher Singh to be told Khurruk Singh was his master

suggestions of the Governor-General regularly carried into effect by the sovereign of Lahore.

The privacy of the Muharaja's household was rudely violated by the Prince and Minister at daybreak on the 8th of October, 1839, and Cheit Singh was awakened from his slumbers to be put to death, within a few paces of his terrified master.* The removal of Colonel Wade was mixed up with the passage of British troops across the Punjab, and had to be effected in another manner.

The Governor-General had designed that the Anglo-Indian army which accompanied Shah Shooja, should return by way of Peshawur, instead of retracing its steps through the Bolan pass, and when his Lordship visited Runjeet Singh at Lahore, the proposition was verbally conceded, although not definitively settled by an interchange of letters.† In September, 1839, Mr. Clerk was sent on a mission of condolence and congratulation to the new Muharaja, and to finally arrange about the return of Lord Keane with the stormers of Ghuznee. The Prince and Minister were each conscious of their mutual enmity, and secret design of grasping supremacy, but they were even more averse to the presence

* Golab Singh was perhaps the most prominent and resolute actor in this tragedy, although his brother and Nao Nihal Singh were both present Col Wade was desired to express to the Lahore Court the regret of the British Government that such a scene of violence should have occurred (Government to Col Wade, 28th Oct 1839), and similarly Mr Clerk had been directed to explain to Khurruk Singh the disapprobation with which the English viewed the practice of suttee with reference to what had taken place at his father's funeral (Government to Mr. Clerk, 20th Aug 1839)

† Government to Mr Clerk, 20th Aug 1839

of a British army in the heart of the Punjab than to one hovering in a distant frontier It might be used to take part with one or other claimant, or it might be turned against both in favor of the contemned Khurruk Singh but the passage of the troops could not be wholly refused, and they therefore urged a march by the difficult route of Dera Ismaeel Khan and they succeeded in fixing upon a line which prudently avoided the capital and also in obtaining a premature assurance that an English force should not again march through Sikh country * The chiefs were pleased with the new English negotiator as all have ever been with that prompt and approved functionary Something is always expected from a change and when a return mission was deputed to Simlah it was wishpered that Colonel Wade had made himself personally objectionable to those who exercise sway at Lahore and the complaint was repeated to Lord Keane, when he quitted his army for a few days to visit the Muharaja.† In the month of November (1839) Colonel Wade was himself at the Sikh metropolis on his way from Caubul but Khurruk Singh was kept at distance on pretence of devotional observances lest he should throw himself on the protection of one belived to be ill-dispoed towards those who sought his life or his virtual relinquishment of power ‡

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* Mr Clerk to Government, 14th Sept. 1839 The Governor General was not satisfied that a kind of pledge had been given that British troops should not again cross the Punjab (Government to Mr Clerk 14th Oct. 1839.)

† See, particularly Government to Col Wade, 29th Jan 1840, and Col. Wade to Government 1st April 1840.

‡ Compare Moonshee Shahamut Alee's *Sikhs and Afghans* p

A portion of the British army of invasion had eventually to be left in Afghanistan, as it was thought that Shah Shooja could not maintain himself without support. The wants of regular forces are manifold, and a supply of stores and ammunition had to be collected for transmission to Caubul on Colonel Wade's resumption of his duties at Loodiana, towards the end of 1839. It was desired to send a regiment of Sepoys as a guard with the convoy, but the Sikh Minister and heir-apparent urged that such could not be done under the terms of the agreement concluded a few months previously Their aversion to their old English representative was mixed up with the general objection to making their country a common highway for foreign armies, and they thus ventured to offer obstructions to the speedy equipment of the isolated British forces, mainly with the view of discrediting Colonel Wade. The Governor-General was justly impressed with the necessity of keeping open the straight road to Caubul, and he yielded to the wishes of the Lahore factions and removed his agent, but not before Dhian Singh and the Prince had despaired of effecting their object, and had allowed the convoy, bristling with bayonets, to proceed on its way* In the

543, &c , and some remarks in a note, p 545 , about the English policy generally towards Khurruk Singh, which note may safely be held to be Col Wade's own Doubtless had Col Wade continued to enjoy the complete confidence or support of the Governor-General, the subsequent history of the Punjab would have been different from, if not better than that which all have witnessed So much may the British representative effect at an Indian court, without directly interfering, provided he is at once firm, judicious and well-informed

* The Governor-General was about to proceed to Calcutta,

beginning of April 1840, Mr Clerk succeeded to the charge of the British relations with the Punjab and independent of his general qualifications he was the person best suited to the requirements of the time for the very reason which rendered the agency of Colonel Wade invaluable when it was desired to preserve Sindh and to invade Afghanistan now rendered that of Mr Clerk equally beneficial to the indeterminate policy of the English in India. Both officers had the confidence of the *de facto* Sikh rulers of the time, and all their recommendations were held to be given in a spirit of good will towards the Government of the Punjab as well as in obedience to the dictates of British interests.

The Sikh Prince and the English Viceroy had thus each accomplished the objects of the moment. On the one hand the Maharaja was overawed by the vigor and success of his aspiring son, and on the other the Punjab was freely opened to the passage of British troops, in support of a policy which connected the west of Europe with the south of Asia by an unbroken chain of alliances. The attention of each party was next turned to other matters of near concern, and the English recurred to their favorite scheme of navigating the Indus, and forming an *entrepôt* on that river which should at once become the centre of a vast traffic.* The treaty of 1834 had placed a toll on boats

which made him the more desirous of having an agent on the frontier at once approved of by himself and agreeable to the Sikhs *i.e* to the influential parties for the time being at Lahore (Government to Col. Wade, 29th Jan. 1840)

* Government to Mr Clerk, 4th May 1840. The establishment of a great *entrepôt* of trade was a main feature of the

which used the channels of the Indus and Sutlej, and in 1839 the Sikhs deferred to the changing views of their allies, and put the duty on the goods themselves, according to an assumed *ad valorem* scale, instead of on the containing vessels.* This scheme inevitably gave rise to a system of search and detention, and in June, 1840, the tolls upon the *boats* were again re-imposed, but at reduced rates, and with the omission of such as contained grain, wood, and limestone.† But in spite of every government endeavor, and of the adventitious aid of large consuming armies, the expectation of creating an active and valuable commerce by the Indus has not yet been fulfilled; partly because Sindh and Afghanistan are, in truth, unproductive countries on the whole, and are inhabited by half savage races, with few wants and scanty means, and partly because a large capital has for ages been embarked in the land trade which connects the north of India with the south, which traverses the old principalities of Rajpootana and the fertile plains of Malwa, and which gives a livelihood to the owners of numerous herds of camels and black cattle. To change

scheme for opening the navigation of the Indus (Government to Capt Wade, 5th Sept. 1836)

* Mr Clerk to Government, 19th May and 18th Sept 1839, and Government to Mr Clerk, 20th Aug 1839 For the agreement itself, see Appendix XV

† Mr Clerk to Government, 5th May, and 15th July, 1840 For the agreement itself, see Appendix XVI Subsequently, idle discussions occasionally arose with local authorities, as to whether bamboos were wood, and whether rice was comprehended under the technical term "grain," which it is not in India. Similarly the limited meaning of "corn" in England has perhaps, given rise to the modern phrase "bread-stuffs."

the established economy of prudent merchants must be the work of time in a country long subject to political commotion and the idea of forming an emporium by proclamation savours more of Eastern vanity than of English sense and soberness.*

Nao Nihal Singh's great aim was to destroy or to reduce to insignificance the potent Raja of Jummoo who wished to engross the whole power of the state, and who jointly held Ludakh and the hill principalities between the Ravee and Jehlum in fief besides numerous estates in various parts of the Punjab. He took advantage of the repeated dilatoriness of the Mundee and other Rajpoot chiefs around Kanggra in paying their stipulated tribute, to move a large force into the eastern hills and the resistance his troops experienced amid mountain fastnesses seemed fully to justify the continuous dispatch of reinforcement. His design was to place a considerable army immediately to the north east of Jummoo to be ready to co-operate with the troops which could reach that place in a few marches from Lahore. The commanders chosen were the skilful General Ventura and the ardent young chief Ajeet Singh Sindhanwala, neither of whom bore good will towards Raja Dhian Singh.† The plans of the youthful

* Nevertheless the experiment was repeated in 1846, on the annexation of the Jalundhur Dooab, when it was hoped, but equally in vain, that Hoshearpoor might suddenly become a centre of exchange. Every part of India bears various marks of the unrealized hopes of sanguine individuals with reference to the expected benefits of English sway which diffuses indeed some moral as well as material blessings but which must effect its work by slow and laborious means.

† Compare Mr Clerk to Government, 6th Sept. 1840.

Prince thus seemed in every way well devised for placing the Rajas in his grasp, but his attention was distracted by disputes with the English authorities about the limits of the expanding dominion of Lahore and of the restored empire of Caubul, and by a direct accusation not only of encouraging turbulent refugees from Shah Shooja's power, but of giving friendly assurances to Dost Mohamed Khan, who was then preparing for that inroad which fluttered the English authorities in Khorassan, and yet paved the way for the surrender of their dreaded enemy Shah Shooja claimed all places not specified in the treaty, or not directly held by Lahore, nor can it be denied that the English functionaries about the Shah were disposed to consider old Dooranee claims as more valid than the new rights of Sikh conquerors; and thus the *Province* of Peshawur, which the Punjab government further maintained to have been ceded in form by the Shah separately in 1834, as well as by the treaty of 1838, was proposed to be reduced to strips of land along the banks of its dividing river.* Intercepted papers were produced, bearing the seals of Nao Nihal Singh, and promising pecuniary aid to Dost Mahomed, but the charge of treachery was calmly repelled, the seals were alleged to be forgeries and the British Agent for the Punjab admitted that it was not the character of the free and confident Sikhs to resort to secret and traitorous correspondence.† The Barukzaee chief, Sooltan

* See particularly Sir Wm Macnaghten to Government, 28th Feb and 12th March, 1840

† Government to Mr Clerk, 1st Oct 1840, and Mr. Clerk to

Mahomed Khan was however made to lead as prisoners to Loodiana the Ghiljaee rebels who had sought an asylum in his fief of Kohat, near Peshawur and whose near presence disturbed the antagonistic rule of the arbitrary Shah and his moderate English allies.*

Nao Nihal Singh thus seemed to have overcome the danger which threatended him on the side of England and to be on the eve of reducing the overgrown power of his grandfather's favorites. At the same time the end of the Maharaja's life was evidently approaching and although his decline was credibly declared to have been hastened by drugs as well as by unfilial harshness, there was none who cared for a ruler so feeble and unworthy. Khurruk Singh at last died on the 5th November 1840 prematurely old and care worn at the age of thirty-eight and Nao Nihal Singh became a King in name as well as in power but the same day dazzled him with a crown and deprived him of life. He had performed the last rites at the funeral pyre of his father and he was passing under a covered gateway with the eldest son of Golab Singh by his side, when a portion of the structure fell and killed the minister's nephew on the spot, and so seriously injured the Prince, that he became senseless at the time, and expired during the night. It is not positively known that the Rajas of Jummoo thus

Government, 9th Dec. 1840. Compare however, Col. Steinbach (*Punjab*, p. 23), who states that the Prince was rousing Nepal as well as Caubul to aid him in expelling the English, forgetful that Nao Nihal Singh's first object was to make himself master of the Punjab by destroying the Jumoo Rajas.

Government to Mr Clerk, 12th Oct. and Mr Clerk to Government, 14 May, 10th Sept., and 24th Oct., 1840.

designed to remove Nao Nihal Singh, but it is difficult to acquit them of the crime, and it is certain that they were capable of committing it. Self-defence is the only palliation, for it is equally certain that the Prince was compassing their degradation, and, perhaps, their destruction.* Nao Nihal Singh was killed in his twentieth year, he promised to be an able and vigorous ruler, and had his life been spared, and had not English policy partly forestalled him, he would have found an ample field for his ambition in Sindh, in Afghanistan, and beyond the Hindoo Koosh, and he might perhaps, at last, have boasted that the inroads of Mehmood and of Tymoor had been fully avenged by the aroused peasants of India

The good-natured voluptuary, Sher Singh, wes regarded by the Sikh Minister and by the British Agent as the only person who could succeed to the sovereignty of the Punjab, and as he was absent from Lahore when the Muharaja died and his son was killed, Dhian Singh concealed the latter circumstance as long as possible, to give Sher Singh time to collect his immediate friends, and the English representative urged him by message to maintain good order along the frontier, as men's

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* Compare Mr Clerk to Government, 6th, 7th, and 10th Nov 1840, who further, in his memorandum of 1842, drawn up for Lord Ellenborough, mentions Gen Ventura's opinion that the fall of the gateway was accidental Lieut-Col Steinbach, *Punjab* (p 24), and Major Smyth, *Reigning Family of Lahore* (p 35, &c), may be quoted as giving some particulars, the latter on the authority of an eye-witness, a European adverturer, known as Capt Gardner, who was present a part of the time, and whose testimony is unfavorable to Raja Dhian Singh

minds were likely to be excited by what had taken place.* But Sher Sing s paternity was more than doubtful he possessed no commanding and few popular qualities the Rajas of Jummoo were odious to the majority of the Sikh chiefs , and thus Chund Kour the widow of Khurruk Singh and the mother of the slain Prince, assumed to herself the functions of regent or ruler somewhat unexpectedly indeed but till unopposed at the moment by those whom she had surprised She was supported by several men of reputation but mainly by the Sindhanwala family which traced to a near and common ancestor with Runjeet Singh. The lady her self talked of adding to the claims of the youthful Heera Singh by adopting him as he had really if not formally been adopted by the old Muharaja. She fur ther distracted the factions by declaring that her daugh ter in law was pregnant and one party tried to gain her over by suggesting a marriage with Sher Singh an alliance which she spurned and the other more reason ably proposed Uttur Singh Sindhanwala as a suitable partner for she might have taken an honored station in household agreeably to the latitude of village custom in the north west of India. But the widow of the Muharaja loudly asserted her own right to supreme power and after a few weeks the government was stated to be composed 1st of the "Maee," or "Mother pre-eminently as sovereign or as regent for the ex pected offspring of Nao Nihal Singh, 2d of Sher Singh as vicegerent, or as president of the council of state

* Compare Mr Clerk to Government, 7th Nov 1840, and also Mr Clerk's Memorandam of 1842.

and 3d, of Dhain Singh as vuzeer, or executive minister. The compromise was a mere temporary expedient and Dhain Singh and Sher Singh soon afterwards began to absent themselves for varying periods from Lahore: the one partly in the hope that the mass of business which had arisen with the English, and with which he was familiar, would show to all that his aid was essential to the government, and the other, or indeed both of them, to silently take measures for gaining over the army with promises of donatives and increased pay, so that force might be resorted to as a fitting time But the scorn with which Sher Shingh's hereditary claim was treated made the minister doubtful whether a more suitable instrument might not be necessary, and the English authorities were accordingly reminded of what perhaps they have never known, viz. that Ranee Jindan, a favourite wife or concubine of Runjeet Singh, had borne to him a son named Dhuleep, a few months before the conferences took place about reseating Shah Shooja on the throne of Caubul.*

The British Viceroy did not acknowledge Maee Chund Kour as the undoubted successor of her husband and son, or as the sovereign of the country, but he treated her government as one *de facto*, so far as to carry on bussiness as usual through the accredited Agents of either power. The Governor-General's anxiety for preservation of order in the Punjab was nevertheless

* Compare Mr Clerk to Government, of dates between the 10th Nov 1840, and 2d Jan 1841, inclusive, particularly of the 11th and 24th Nov and 11th Dec, besides those specified It seems almost certain that the existence of the boy Dhuleep was not before known to the British authorities.

considerable, and it was increased by the state of affairs in Afghanistan, for the attempts of Dost Mahomed and the resolution of meeting him with English means alone, rendered the despatch of additional troops necessary, and before Khurruk Singh's death three thousand men had reached Feerozpoor on their way to Caubul.* The progress of this strong brigade was not delayed by the contentions at Lahore, it pursued its march without interruption, and on its arrival at Peshawur it found Dost Mahomed a prisoner instead of a victor The ex Ameer journeyed through the Punjab escorted by a relieved brigade, and although Sher Singh was then laying siege to the citadel of Lahore, the original prudence of fixing a route for British troops clear of the Sikh capital and the complete subjugation of the Mahometan tribes left the English commander unaware of the struggle going on, except from ordinary reports and news-writers.†

The English Government made indeed no declaration with regard to the Lahore succession but it was believed by all that Sher Singh was looked upon as the proper representative of the kingdom and the advisers of Maee Chund Koor soon found that they could not withstand the specious claims of the Prince and the commanding influence of the British name, without throwing themselves wholly of the support of Raja

* Government to Mr Clerk, 1st and 2d Nov 1840, and other letters to and from that functionary

† The returning brigade was commanded by the veteran Col. Wheeler whose name is familiar to the public in connection both with Afghan and Sikh wars.

Dhian Singh. That chief was at one time not unwilling to be the sole minister of the Muharanee, and the more sagacious Golab Singh saw advantages to his family amid the complex modes necessary in a female rule, which might not attend the direct sway of a Prince of average understanding, inclined to favoritism, and pledged to Sikh principles. But the Maee's councillors would not consent to be thrown wholly into the shade, and Dhian Singh thus kept aloof, and secretly assured Sher Singh of his support at a fitting time. The Prince, on his part, endeavored to sound the English Agent as to his eventual recognition, and he was satisfied with the reply, although he merely received an assurance that the allies of thirty-two years wished to see a strong government in the Punjab *

Sher Singh had, with the Minister's aid, gained over some divisions of the army, and he believed that all would declare for him if he boldly put himself at their head The eagerness of the Prince, or of his immediate followers, somewhat precipitated measures, and when he suddenly appeared at Lahore on the 14th January, 1841, he found that Dhian Singh had not arrived from Jummoo, and that Golab Singh would rather fight for the Muharanee, the acknowledged head of the state, than tamely become a party on compulsion to his ill-arranged schemes But Sher Singh was no longer his own master, and the impetuous soldiery at once proceeded to breach the citadel Golab Singh in vain urged some delay, or a suspension of hostilities, but on the 18th

* See Mr Clerk's letters to Government of Dec. 1840 and Jan 1841, generally, particularly that of the 9th Jan.

January Dhian Singh and most of the principal chiefs had arrived and ranged themselves on one side or the other A compromise took place, the Maee was outwardly treated with every honour and large estates were conferred upon her, but Sher Singh was proclaimed Muharaja of the Punjab, Dhian Singh was declared once more to be vuzeer of the state, and the pay of the soldiery was permanently raised by one rupee per mensem The Sindhanwalas felt that they must be obnoxious to the new ruler, and Uttur Singh and Ajeet Singh took early measures to effect their escape from the capital and eventually into the British territories but Lehna Singh the other principal member remained with the division of the army which he commanded in the hills of Kooloo and Mundee.*

Sher Singh had induced the troops of the state to make him a King but he was unable to command them as soldiers or to sway them as men and they took advantage of his incapacity and of their own strength to wreak their vengeance upon various officers who had offended them and upon various regimental accountants and muster masters who may have defrauded them of their pay Some houses were plundered and several individuals were seized and slain. A few Europeans had likewise rendered themselves obnoxious and General Court, a moderate and high minded man had to fly for his life and a brave young Englishman named Foulkes was cruelly put to death. Nor was this spirit of violence confined to the troops at the capital or to those in the eastern hills but it spread to Cashmeer

* See Mr Clerk's letters, of dates from 17th to 30th Jan. 1841

and Peshawur, and in the former place, Meehan Singh the Governor was killed by the soldiery, and in the latter, General Avitebile was so hard pressed, that he was ready to abandon his post and to seek safety in Jellalabad.* It was believed at the time, that the army would not rest satisfied with avenging what it considered its own injuries, it was thought it might proceed to a general plunder or confiscation of property, the population of either side of the Sutlej was prepared for an extensive commotion, and the wealthy merchants of Amritsir prophesied the pillage of their warehouses, and were clamorous for British protection. Sher Singh shrunk within himself appalled, and he seemed timorously to resort to the English Agent for support against the fierce spirit he had roused and could not control, or he doubtfully endeavoured to learn whether such disorders would be held equally to end his reign and the British alliance. The English watched the confusion with much interest and some anxiety, and when cities seemed about to be plundered, and provinces ravaged, the question of the duty of a civilized and powerful neighbour naturally suggested itself, and was answered by a cry for interference but the shapes which the wish took were various and contradictory. Nevertheless, the natural desire for aggrandizement, added to the apparently disorganized state of the army, contributed to strengthen a willing belief in the inferiority of the Sikhs as soldiers, and in the great excellence of the mountain levies of the chiefs of Jummoo, who alone

* Compare Mr Clerk to Government, 26th Jan, 8th and 14th Feb. 28th April, and 30th May, 1841

seemed to remain the masters of their own servants. To the apprehension of the English authorities the Sikhs were mere upstart peasants of doubtful courage, except when maddened by religious persecution, but the ancient name of Rajpoot was sufficient to invest the motley followers of a few valiant chiefs with every war like quality This erroneous estimate of the Sikhs tainted British counsels until the day of Pheeroo shuhur *

The English seemed thus called upon to do some thing and their Agent in Caubul who was committed to make Shah Sooja a monarch in means as well as in rank grasped at the death of Runjeet Singh s last representative, he pronounced the treaties with Lahore to be at an end and he wanted to annex Peshawur to the Afghan sway The British Government in Cal cutta rebuked this hasty conclusion but cheered itself with the prospect of eventually adding the Derajat of the Indus as well as Peshawur to the unproductive Dooranee kingdom without any breach of faith towards

* This erroneous estimate of the troops of the Jummoo Rajas and other hill ch efs of the Punjab relatively to the Sikhs may be seen insisted on in Mr Clerk's letters to Government of the 2d Jan. and 13th April, 1841 and especially in those of the 8th and 10th Dec. of that year and of the 15th Jan., 10th Feb., and 23d April, 1842 Mr Clerk's expressions are very decided, such as that the Sikhs feared the hill men, who were braver and that Rajpoots might hold Afghans in check which Sikhs could not do but he seems to have forgotten that the ancient Rajpoots had, during the century gone by yielded on either side to the new and aspiring Goorkhas and Mahrattas, and even that the Sikhs themselves had laid the twice born Princes of the Himalayas under contribu tion from the Ganges to Cashmeer.

the Sikhs, for it was considered that their dominions might soon be rent in two by the Sindhanwala Sirders and the Jummoo Rajas * The British Agent on the Sutlej did not think the Lahore empire so near its dissolution in that mode, and confident in his own dexterity, in the superiority of his troops, and in the greatness of the English name, he proposed to march to the Sikh capital with 12,000 men, to beat and disperse a rebel army four times more numerous, to restore order, to strengthen the sovereignty of Sher Singh, and take the cis-Sutlej districts and forty lakhs of rupees in coin as the price of his aid. † This promptitude made the Muharaja think himself in danger of his life at the hands of his subjects, and of his kingdom at the hands of his allies, ‡ nor was the Governor-General prepared for a virtual invasion, although he was ready to use force if a large majority of the Sikhs as well as the Muharaja himself desired such intervention § After

* See especially Government to Sir Wm Macnaghten, of 28th Dec 1850, in reply to his proposals of the 26th Nov The Governor-General justly observed that the treaty was not formed with an individual chief, but with the Sikh state, so long as it might last and fulfil the obligations of its alliance

† Mr Clerk to Government, of the 26th March, 1841

‡ When Sher Singh became aware of Mr Clerk's propositions, he is said simply to have drawn his finger across his throat, meaning that the Sikhs would at once take his life if he assented to such measures The readiness of the English to co-operate was first propounded to Fukeer Uzeez-ooddeen, and that wary negotiator said the matter could not be trusted to paper, he would himself go and tell Sher Singh of it He went, but he did not return, his object being to keep clear of schemes so hazardous

§ Government to Mr Clerk, 18th Feb and 29th March, 1841

this the disorders in the army near Lahore gradually subsided, but the opinion got abroad that overtures had been made to the eager English, and so far were the Sikh soldiery from desiring foreign assistance, that Lehna Singh Sindhanwala was imprisoned by his own men in the Mundee hills on a charge of conspiracy with his refugee brother to introduce the supremacy of strangers.*

The suspicions and hatred of the Sikhs were further roused by the proceedings of an officer afterwards nominated to represent British friendship and moderation Major Broadfoot had been appointed to recruit a corps of Sappers and Miners for the service of Shah Shooja and as the family of that sovereign and also the blind Shah Zuman with his wives and children were about to proceed to Caubul he was charged with the care of the large and motely convoy He entered the Punjab in April 1841 when the mutinous spirit of the Sikh army was spreading from the capital to the provinces. A body of mixed or Mahometan troops had been directed by the Lahore Government to accompany the royal families as an escort of protection but Major Broadfoot became suspicious of the good faith of this detachment and on the banks of the Ravee he prepared to resist with his newly recruited regiment, an attack on the part of those who had been sent to conduct him in safety On his way to the Indus he was even more suspicious of other bodies of troops

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The Governor-General truly remarked that Mr Clerk, rather than the Muharaja, had proposed an armed interference

* Mr Clerk to Government 25th March, 1841

which he met or passed, he believed them to be intent on plundering his camp, and he considered that he only avoided collisions by dexterous negotiations and by timely demonstrations of force On crossing the river at Attok, his persuasion of the hostile designs of the battalions in that neighborhood and towards Peshawur was so strong, that he put his camp in a complete state of defence, broke up the bridge of boats, and called upon the Afghan population to rise and aid him against the troops of their Government. But it does not appear that his apprehensions had even a plausible foundation, until at this time he seized certain deputies from a mutinous regiment when on their way back from a conference with their commander, and who appear to have come within the limits of the British pickets This proceeding alarmed both General Avitabile the Governor of Peshawur, and the British Agent at that place, and a brigade, already warned, was hurried from Jellalabad to overawe the Sikh forces encamped near the Indus. But the Shah's families and their numerous followers had passed on unmolested before the auxiliary troops had cleared the Khyber Pass, and the whole proceeding merely served to irritate and excite the distrust of the Sikhs generally, and to give Sher Singh an opportunity of pointing out to his tumultuous soldiers that the Punjab was surrounded by English armies, both ready and willing to make war upon them *

Before the middle of 1841 the more violent proceedings of the Lahore troops had ceased, but the

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* Compare Mr. Clerk to Government, 25th May and 10th June, 1841.

relation of the army to the state had become wholly altered It was no longer the willing instrument of an arbitrary and genial government, but it looked upon itself and was regarded by others as the representative body of the Sikh people as the Khalsa itself assembled by tribes or centuries to take its part in public affairs. The efficiency of the army as a disciplined force was not much impaired for a higher feeling possessed the men, and increased alacrity and resolution supplied the place of exact training They were sensible of the advantage of systematic union, and they were proud of their armed array as the visible body of Govind's commonwealth. As a general rulé, the troops were obedient to their appointed officers so far as concerned their ordinary military dutíes but the position of a regiment, of a brigade, of a division or of the whole army relatively to the executive government of the country was determined by a committee or assemblage of committees termed a "Punch" or "Punchayet *et* a jury or committee of five composed of men selected from each battalion, or each company in consideration of their general character as faithfull *Sikh* soldiers, or from their particular influence in their native villages. The system of Punchayets is common throughout India and every tribe or section of a tribe or trade, or calling readily submits to the decisions of its elders or superiors seated together in consultation. In the Punjab the custom received a further development from the organization necessary to an army and even in the crude form of representation thus achieved the Sikh people were enabled to interfere with effect and with some degree of consistency, in the nomination and in

the removal of their rulers. But these large assemblies sometimes added military licence to popular tumult, and the corrupt spirit of mercenaries to the barbarous ignorance of ploughmen. Their resolutions were often unstable or unwise, and the representatives of different division might take opposite sides from sober conviction or self-willed prejudice, or they might be bribed and cajoled by such able and unscrupulous men as Raja Golab Singh *

The partial repose in the autumn of 1841 was taken advantage of to recur to those mercantile objects, of which the British Government never lost sight The facilities of navigating the Indus and Sutlej had been increased, and it was now sought to extend corresponding advantages to the land trade of the Punjab Twenty years before, Mr. Moorcroft had, of his own instance, made proposals to Runjeet Singh for the admission of British goods into the Lahore dominion at fixed rates of duty. † In 1832, Colonel Wade again brought forward the subject of a general tariff for the Punjab, and the Muharaja appeared to be not indisposed to meet the views of his allies, but he really disliked to make arrangement of which he did not fully see the scope and tendency, and he thus tried to evade even a settlement of the river tolls, by saying that the prosperity of Amritsir would be affected, and by recurring to that ever ready objection, the slaughter of kine.

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* See Mr Clerk's letter of the 14th March, 1841, for Fukeer Uzeezooddeen's admission, that even then the army was united and ruled by its punchayets

† Moorcroft, *Travels*, i. 103

Cows he said might be used as food by those who traversed the Punjab under a British guarantee.* In 1840, when Afghanistan was garrisoned by Indian troops the Governor General pressed the subject a second time on the notice of the Lahore authorities, and after a delay of more than a year Sher Singh assented to a reduced scale and to a fixed rate of duty and also to levy the whole sum at one place but the charges still appeared excessive, and the British Viceroy lamented the ignorance displayed by the Sikh Maharaja, and the disregard which he evinced for the true interests of his subjects.†

The Lahore Government was convulsed at its centre, but its spirit of progress and aggrandizement was active on the frontiers where not hemmed in by British armies. The deputies in Cashmeer had always been jealous of the usurpations of Golab Singh in Tibet, but Meehan Singh a rude soldier the Governor of the valley during the commotions at Lahore, was alarmed into concessions by the powerful and ambitious Rajas of Jummoo and he left Iskardo and the whole valley of the Upper Indus, a free field for the aggressions of their lieutenants. Ahmed Shah the reigning chief of Baltee had

* Compare Col. Wade to Government, 7th Nov and 5th Dec 1832 These objections are often urged in India, not because they are felt to be reasonable in themselvs or applicable to the point at issue but because religion is always a strong ground to stand on and because it is the only thing which the English do not virtually profess a desire to change. Religion is thus brought in upon all occasions of apprehension or disinclinations

† Government to Mr Clerk, 4th May 1840, and 11th Oct. 1841 and Mr Clerk to Government of 20th Sept. 1841

differences with his family, and he proposed to pass over his eldest son in favor of a younger one, in fixing the succession. The natural heir would seem to have endeavored to interest the Governor of Cashmeer, and also Zorawur Singh, the Jummoo deputy in Ludakh, in his favor, and in 1840 he fled from his father and sought refuge and assistance in Leh. Gnodoop Tunzin, the puppet King of Ludakh, had conceived the idea of throwing off the Jummoo authority, he had been endeavoring to engage Ahmed Shah in the design; the absence of Zorwur Singh was opportune, and he allowed a party of Iskardo troops to march on Leh, and to carry off the son of their Chief. Zorawur Singh made this inroad a pretext for war, and before the middle of the year 1840 he was master of Little Tibet, but he left the chiefship in the family of Ahmed Shah, on the payment of a petty yearly tribute of seven thousand rupees, so barren are the rocky principalities between Imaus and Emodus* Zorawur Singh was emboldened by his own success and by the dissensions at Lahore, he claimed fealty from Ghilghit, he was understood to be desirous of quarrelling with the Chinese Governor of Yarkund, and he renewed antiquated claims of Ludakh supremacy, and demanded the surrender of Rohtuk, Garo, and the lakes of Mansarawur, from the priestly King of Lassa†

Zorawur Singh was desirous of acquiring territory,

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* Compare Mr Clerk to Government, 26th April, 9th and 31st May, and 25th Aug 1840

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and he was also intent on monopolizing the trade in shawl wool, a considerable branch of which followed the Sutlej and more eastern roads to Loodiana and Delhi and added nothing to the treasury of Jummoo.* In May and June, 1841 he occupied the valleys of the Indus and Sutlej to the sources of those rivers and he fixed a garrison close to the frontiers of Nepal, and on the opposite side of the snowy range from the British post of Almora. The petty Rajpoot princes between the Kalee and Sutlej suffered in their revenues and trembled for their territories the Nepal Government had renewed its intrigues of 1838 and was in correspondence with the crafty minister of Lahore and with the disaffected Sindhanwala chief † and the English

* Compare Mr Clerk to Government, 5th and 23d June, 1841

† Compare Mr Clerk to Government, 16th Aug and 23d Nov 1840, and 17th Jan. 1841 and Government to Mr Clerk 19th Oct. 1840. The correspondence of Nepal with the Sikhs, or rather with the Jummoo faction, doubtless arose in part from the presence of Matabur Singh an eminent Goorkha, as a refugee in the Punjab He crossed the Sutlej in 1838, and soon got a high command in the Lahore service, or rather perhaps, a high position at the court His success in this way and his necessary correspondence with British functionaries, made the Nepal Government apprehensive of him, and at last he became so important in the eyes of the English themselves, that in 1840, when differences with Kathmandoo seemed likely to lead to hostilities, overtures were virtually made to him, and he was kept in hand, as it were, to be supported as a claimant for power or as a partisan leader *should* active measures be necessary He was thus induced to quit the Punjab, where his presence, indeed, was not otherwise satisfactory but the differences with the Goorkhas were composed, and Matabur Singh was cast aside with an allowance of a thousand rupees a month from the potent Government which

Government itself was at war with China, at the distance of half the earth's circumference. It was held that the trade of British Indain subjects must not be interfered with by Jummoo conquests in Chinese Tibet, it was deemed unadvisable to allow the Lahore and Nepal dominions to march with one another behind the Himalayas; and it was thought the Emperor of Pekin might confound independent Sikhs with the predominant English, and throw additional difficulties in the way of pending or probable negotiations * It was therefore *decided that Sher Singh should require his feudatories* to evacuate the Lassa territories, a day, the 10th of December, 1841, was fixed for the surrender of Garo, and a British officer was sent to see that the grand Lama's authority was fully re-established. The Muharaja and his tributaries yielded, and Zorawur Singh was recalled, but before the order could reach him, or be acted on, he was surrounded in the depth of winter, and at a hight of towelve thousand feet or more above the sea, by a superior force from Lassa enured to frost and snow. The men of the Indain plains and southern Himalayas were straitened for fuel—as necessary as food in such a climate and at such a season, some even

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had demeaned itself by using him as a tool (Compare particularly Government to Mr Clerk, 4th May and 26th Oct 1840, and Mr Clerk to Government, 22d Oct 1840)

* Compare Government to Mr Clerk, 16th Aug and 6th and 20th Sept 1841 The Sikhs, too, had their views with regard to China, and naively proposed co-operation with the English, or a diversion in *Tartary* in favor of the war then in progress on the *sea coast!* (Mr Clerk to Government, 18th Aug and 20th Oct. 1841)

burnt the stocks of their muskets to warm their hands, and on the day of battle, in the middle of December they were benumbed in their ranks during a fatal pause, their leader was slain a few principal men were reserved as prisoners, but the mass was left to perish huddled in heaps behind rocks or at the bottoms of ravines. The neighboring garrison on the Nepal frontier fled on hearing of the defeat the men were not pursued but in passing over ranges 16000 feet high on their way to Almora, the deadly cold reduced them to half their numbers and left a moiety of the remainder maimed for life.*

During the spring of 1842 the victorious Chinese advanced along the Indus, and not only recovered their own province, but occupied Ludakh and laid siege to the citadel of Leh. The Kalmuks and the ancient Sokpos or Sacæ, talked of another invasion of Cashmeer, and the Tatars of the Greater and Lesser Tibet were elate with the prospect of revenge and plunder but troops were poured across the Himalayas the swordsmen and cannoneers of the south were dreaded by the unwarlike Bhotees the siege of Leh was raised and in the month of September (1842) Golab Singh's commander seized the Lassa Vuzeer by treachery and dislodged his troop by stratagem from a position between Leh and Rohtuk,

* In this repaid sketch of Ludakh affairs, the author has necessarily depended for the most part on his own personal knowledge. After the battle on the Mansarawar Lake, the western passes remained closed for five weeks, and the defeat of the Sikhs was thus made known in Calcutta and Peshawur through the reports of the fugitives to Almora, before it was heard of in the neighbouring Garo.

where they had proposed to await the return of winter. An arrangement was then come to between the Lassa and Lahore authorities, which placed matters on their old footing, agreeably to the desire of the English; and as the shawl-wool trade to the British provinces was also revived, no further intervention was considered necessary between the jealous Chinese and the restrained Sikhs.*

When in April, 1841, the troops in Cashmeer put their Governor to death, Raja Golab Singh was sent to restore order, and to place the authority of the new manager, Gholam Moheiooddeen on a firm footing. The mutinous regiments were overpowered by numbers and punished with severity, and it was soon apparent that Golab Singh had made the Governor whom he was aiding a creature of his own, and had become the virtual master of the valley.† Neither the Minister nor his brother had ever been thought well pleased with English interference in the affairs of the Punjab, they were at the time in suspicious communication with Nepal, and they were held to be bound to Sultan Mahomed Khan, whose real or presumed intrigues with the enemies of

* At Amritsir in March, 1846, when Golab Singh was formally inaugurated as Muharaja of Jummoo, he exhibited the engagement with the Lama of Lassa, drawn out on his part in yellow, and on the part of the Chinese in red ink, and each impressed with the open hand of the negotiators dipped in either color instead of a regular seal or written signature The "Punja," or *hand*, seems in general use in Asia as typical of a covenant, and it is moreover a common emblem on the standards of the eastern Afghans

† Compare Mr Clerk to Government, 13th May, 9th July, and 3d Sept 1840.

Shah Shooja had occasioned his removal to Lahore a year previously * General Avitabile had become more and more urgent to be relieved from his dangerous post at Peshawur the influence of Dhian Singh was predominant in Sikh counsels; and the English opinion of the ability of the Jummoo Rajas and of the excellence of their troops was well known, and induced a belief in partiality to be presumed. † It was therefore proposed by Sher Singh to bestow the Afghan province on the restorer of order in Cashmeer But this arrangement would have placed the hills from the neighborhood of Kanggra to the Khyber Pass in the hands of men averse to the English and hostile to Shah Shooja and as their troublesome ambition had been checked in Tibet, so it was resolved that their more dangerous establishment on the Caubul river should be prevented In the autumn of 1841 therefore, the veto of the *English Agent was put upon Raja Golab Singh s nomi*nation to Peshawur ‡

About two months afterwards or on the 2d November (1841), that insurrection broke out in Caubul

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* For this presumed understanding between the Jummoo Rajas and the Barukzaees of Peshawur Mr Clerk's letter of the 8th Oct. 1840, may be referred to among others

† *Mr Clerk leant* upon and *perhaps* much overrated *Dhian Singh's* capacity "his military talents, and aptitude for business. (Mr Clerk to Government, 7th Nov 1840, and 13th May 1841) General Ventura, for instance, considered the Raja to possess a very slender understanding and in such a matter he my be held to be a fair as well as a competent judge, although personally averse to the minister

‡ Government to Mr Clerk, 2d Aug., and Mr Clerk to Government, 20th Aug 1841

which forms so painful a passage in British history. No valiant youth arose superior to the fatal influence of military subordination, to render illustrious the retreat of a handful of Englishmen, or more illustrious still, the successful defence of their position.* The brave spririt of Sir William Macnaghten laboured perseveringly, but in vain, against the unworthy fear which possessed the highest officers of the army; and the dismay of the distant commanders imparted some of its poison to the supreme authorities in India, who were weary of the useless and burdensome occupation of Khorassan. The first generous impulse was awed into a desire of annuling the Dooranee alliance, and of collecting a force on the Indus, or even so far back as the Sultej, there to fight for the empire of Hindostan with the torrents of exulting Afghans which the startled imaginations of Englishmen readily conjured up.† No confidence was placed in the efficiency or the friendship

* There was no want of gallant and capable men in the subordinate ranks of the army, and it is known that the lamented Major Pottinger recorded his disapprobation of the retreat so fatuitiously commenced and so fatally ended, although, to give validity to documents, or an appearance of unanimity to counsels, he unfortunately put his name to the orders requiring the surrender of Candahar and Jellalabad.

† Compare Government to the Commander-in-Chief, 2d Dec. 1841, and 10th Feb. 1842, Government to Mr. Clerk, 10th Feb. 1842, and Government to Gen. Pollock, 24th Feb. 1842. Of those who recorded their opinions about the policy to be followed at the moment, it may be mentioned that Mr. Robertson, the Lieutenant-Governor of Agra, and Sir Herbert Maddock, the political secretary, advised a stand at Peshawur, and that Mr. Prinsep, a member of council, and Mr. Colvin, the

of the Sikhs * and although their aid was always considered of importance, the mode in which it was asked and used only served to sink the Lahore army lower than before in British estimation †

Four regiments of Sepoys marched from Feerozpoor without guns, and unsupported by cavalry to vainly endeavor to force the Pass of Khyber, and the Sikh troops at Peshawur were urged by the local British authorities in their praiseworthy ardor rather than deliberately ordered by their own government at the instance of its ally to co-operate in the attempt, or in deed to march alone to Jellalabad The fact that the

Governor General's private secretary recommended a withdrawal to the Sutlej All, however contemplated ulterior operations.

The Commander in Chief, it is well known, thought the means of the *English* for defending India itself somewhat scanty and Mr Clerk thought the *Sikhs* would be unable to check the invasion of mountaineers, which would assuredly take place were Jellalabàd to fall. (Mr Clerk to Government, 15ht Jan. 1842.)

* Government to the Commander in-Chief 15th March, 1842.

† Mr Colvin, in the minute referred to in the preceding note, grounds his proposition for withdrawing to the Sutlej partly on Mr Clerk's low estimate of the Sikhs, and their presumed inability to resist the Afghans Colonel Wade seems to have had a somewhat similar opinion of the comparative prowess of the two races, on the fair presumption that the note (page 535) of Moonshee Shahamut Alee's *Sikhs and Afghans* is his He says the Sikhs always dreaded the Khyberees and, indeed General Avitabile could also take up the notion with some reason, in one sense, as the Magistrate of a district surround ed by marauding highlanders, and with sufficient adroitness in another when he did not desire to see Sikh regiments hurried into mountain defiles at the instance of the English authorities. (Compare the *Calcutta Review*, No. III p. 142)

English had been beaten was notorious, and the belief in their alarm was welcome · the Sikh Governor was obliged, in the absence of orders, to take the sense of the regimental "punches" or committees, and the hasty requisition to march was rejected, through fear alone, as the English said, but really with feelings in which contempt, distrust, and apprehention were all mixed. The district Governor-General, Avitabile, who fortunately still retained his province, freely gave what aid he could, some pieces of artillery were furnished as well as abundance of ordinary supplies, and the British detachment effected the relief of Alee Musjid But the unpardonable neglect of going to the Fort without the food which had been provided, obliged the garrison to retreat after a few days, and the disinclination of the Sikhs to fight the battles of strangers communicated itself to the mercenary soldiers of the English, and thus added to the Governor-General's dislike of the Afghan connection *

The necessity of at least relieving the garrison of Jellalabad was paramount, and in the spring of 1842 a well equipped British force arrived at Peshawur, but the active co-operation of the Sikhs was still desirable,

* The statements in this paragraph are mainly taken from the author's notes of official and demi-official correspondence. The letter of Government to Mr Clerk, of the 7th Feb 1842, may also be referred to about the failure to hold Alee Musjid, and, further, it may be mentioned that Mr Clerk, in his letter of the 10th February, pointed out, that although the Sikhs might not willingly co-operate in any sudden assault planned by the English, they would be found ready to give assistance during the campaign in the ways their experience taught them to be the most likely to lead to success

and it was sought for under the terms of an obsolete article of the tripartite treaty with Shah Shooja which gave Lahore a subsidy of two lakhs of rupees in exchange for the services of 5000 men * Sher Singh was willing for the assist beyond this limited degree he greatly facilitated the purchase of grain and the hire of carriage cattle in the Punjab and his auxiliaries could be made to outnumber the troops of his allies but he felt uneasy about the proceedings of the Sindhanwala chiefs one of whom had gone to Calcutta to urge his own claims, or those of Maee Chund Kour and all of whom retained influence in the Sikh ranks. He was assured that the refugees should not be allowed to disturb his reign and there thus seemed to be no obstacle in the way of his full co operation † But the genuine Sikhs were held by the English to be both mutinous in disposition and inferior in warlike spirit the soldiers of Jummoo were preferred and Golab Singh was required to proceed to Peshawur to repress the insubordinate Khalsa, and to give General Pollock the

* See Government to Mr Clerk, 3d May and 23d July 1842 The English Agents, however rather tauntingly and imploringly reminded the Sikh authorities that they were bound to have such a force ready by agreement as well as by friendship than formally revived the demand for its production under the stipulations of the treaty

† Compare Mr Clerk to Government, 2d Jan and 31st March, 1842, and Government to Mr Clerk, 17th Jan. and 12th May 1842. With regard to assistance rendered by the Sikhs during the Afghan War in furnishing escorts, grain, and carriage for the British troops, Mr Clerk's letters of the 15th Jan., 18th May and 14th June, 1842 may be quoted. In the last it is stated that 17,381 camels had been procured through Sikh agency between 1839 and 1842.

assurance of efficient aid.* The raja was at the time completing the reduction of some iusurgent tribes between Cashmeer and Attok, and his heart was in Tibet, where he had himself lost an army and a kingdom. He went, but he knew the temper of his own hill levies · he was naturally unwilling to run any risk by following the modes of strangers to which he was unused, and he failed in rendering the Sikh battalions as decorous and orderly as English regiment. His prudence and ill-success were looked upon as collusion and insincerity, and he was thought to be in league with Akber Khan for the destruction of the army of an obnoxious European power † Still his aid was held to be essential, and the local British officers proposed to bribe him by the offer of Jellalabad, independent of his sovereign Sher Singh. The scheme was justly condemned by Mr Clerk, ‡ the Khyber Pass was forced in the month of April, and the auxiliary Sikhs acquitted themselves to the satisfaction of the English General, without any promises having been made to the Raja of Jummoo, who gladly hurried to the Ludakh frontier to look

* Compare Mr Clerk to Government, 10th Jan , 13th Feb and 6th May, 1842 Government at first seemed indifferent whether Golab Singh went or not , and, indeed, Mr Clerk himself rather suggested than required the Raja's employment ; but suggestions or wishes could not, under the circumstances, be misconstrued

† Compare Mr Clerk to Government, 19th March, 1842

‡ Mr Clerk to Government, 13th Feb. 1842. The officers referred to are Major Mackeson and Lieut-Col Sir Henry Lawrence, whose names are so intimately, and in so many ways honorably, identified with the career of the English in the north-west of India.

after interest dearer to him than the success or the vengeance of foreigners. It was designed by General Pollock to leave the whole of the Sikh division at Jellalabad to assist in holding that district, while the main English army went to Caubul but the proper interposition of Colonel Lawrence* enabled a portion of the Lahore troops to share in that retributive march as they had before shared in the first invasion and fully shown their fitness for meeting difficulties when left to do so in their own way

The proposition of conferring Jellalabad on Golab Singh was taken up in a modified form by the new Governor General Lord Ellenborough. As his lordship s views became formed he laid it down as a principle, that neither the English nor the Sikh Government should hold dominion beyond the Himalayas and the "Suffed Koh" of Caubul and as the Dooranee alliance seemed to be severed there was little to apprehend from Jummoo and Barukzaee intrigues. It was therefore, urged that Golab Singh should be required by the Maharaja to relinquish Ladakh and to accept Jellalabad on equal terms of dependency on the Punjab.† The Sikhs were sufficiently desirous of adding to their dominion another Afghan district, but the terms did not satisfy Golab Singh nor did Sher Singh see fit to

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* Lieut Col. Lawrence to Major Mackeson, 23rd Aug 1842. Lieut. Col. Lawrence's article in the *Calcutta Review* (No. III p. 180) may also be advantageously referred to about the proceedings at Peshawur under Col Wild, Sir George Pollock, and Raja Golab Singh

† Government to Mr Clerk, 27th April. 1842

come to any conclusion until he should know the final views of the English with regard to the recognition of a government in Caubul * The death of Shah Shooja and his suspicious proceedings were held to render the re-occupation of the country unnecessary, and the tripartite treaty was declared to be at an end ,† but the policy of march on the Afghan capital was strongly urged and wisely adopted ‡ There seemed to be a prospect of wintering in Caubul, and it was not until the victorious troops were on their return to India, that it was believed the English would ever forego the possession of an empire. The Sikhs then consented to take Jellalabad, but before the order transferring it could reach General Pollok, § that commander had destroyed

* Mr Clerk to Government, 18th May, 1842

† Government to Mr Clerk, 27th May and 19th July, 1842 In the treaty drafted by the Sikhs to take the place of the tripartite one, they put forward a claim of superiority over Sindh, and somewhat evaded the question of being parties only, instead of principals , to the acknowledgment of a ruler in Caubul The treaty, however, never took a definite shape

‡ Even the Sikhs talked of the *impolicy*, or, at least the disgrace, of suddenly and wholly withdrawing from Afghanistan in the manner proposed (Mr Clerk to Government, 19th July, 1842) Mr Clerk himself was among the most prominent of those who at first modestly urged a march on Caubul, and afterwards manfully remonstrated against a hasty abandonment of the country (See his letter above quoted, and also that of the 23d April, 1842)

§ The order was dated the 18th Oct 1842 Lord Ellenborough himself was not without a suspicion that the victoriours generals might frame excuses for wintering in Caubul, and the expedition of Sir John M'Caskill into the Kohistan was less pleasing to him on that account than it would otherwise have been

the fortifications, and nominally abandoned the place to the King whom he had expediently set up in the Bala Hissar It is probable that Sher Singh was not unwilling to be relieved of the invidious gift, for his own sway in Lahore was distracted, and Dost Mahomed was about to be released under the pledge of a safe passage through the Punjab dominions and it may have been thought prudent to conciliate the father of Akber Khan, so famous for his successes against the English, by the surrender of a possession it was inconvenient to hold *

The Governor General had prudently resolved to assemble an army at Feerozpoor as a reserve in case of further disasters in Afghanistan and to make known to the princes of India that their English masters had the

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* The Shikhs were not unwilling to acquire territory but they wished to see their way clearly and they were unable to do so until the English had determined on their own line of policy The Sikhs knew indeed of the resolution of the Governor General to sever all connection with Afghanistan but they also knew the sentiments of the majority of Englishmen about at least temporarily retaining it. They saw moreover that recruited armies were still in possession of every strong hold, and policy was new to them of voluntarily relinquishing dominion. They therefore paused and the subsequent release of Dost Mahomed again fettered them when the retirement of the troops seemed to leave them free to act, for they were bound to escort the Ameer safely across the Punjab, and could not therefore make terms with him. The Sikhs would have worked through Sooltan Mahomed Khan and other chiefs, until they were in a condition to use the frequent plea of the English, of being able to govern better than dependants (Compare Mr Clerk to Government, 2d Sept. 1842)

ready means of beating any who might rebel.* Lord Ellenborough was also desirous of an interview with Sher Singh, and as gratitude was uppermost for the time, and added a grace even to success, it was proposed to thank the Muharaja in person for the proofs which he had afforded of his continued friendship. To invest the scene with greater eclat, it was further determined, in the spirit of the moment, to give expression to British sincerity and moderation at the head of the two armies returning victorious from Caubul, with their numbers increased to nearly forty thousand men by the force assembled on the Sutlej. The native English portion of this array was considerable, and perhaps so many Europeans had never stood together under arms on Indian ground since Alexander and his Greeks made the Punjab a province of Macedon. The Sikhs generally were pleased with one cause of this

* Lord Auckland had likewise thought that such a demonstration might be advisable (Government to Mr. Clerk, 3rd Dec 1841) Of mearsures practically identified with Lord Ellenborough's administration, Lord Auckland may further claim the merit of giving the generals commanding in Afghanistan supreme authority (Resolution of Government, 6th Jan 1842), and of directing Sir William Nott to act without reference to previous instructions, and as *he* might deem best for the safety of his troops and the honor of the British name (Government to Sir William Nott, 10th Feb 1842) To Lord Auckland however, is due the *doubtful* praise of suggesting the release of Dost Mahamed (Government to Mr Clerk, 24th Feb 1842), and he must certainly bear a share of the blame attached to the exaggerated estimate formed of the dangers which threatened the English after the retreat from Caubul, and to the timorous rather than prudent design of falling back on the Indus, or even on the Sutlej

assemblage and they were glad to be relieved of the presence of the English on their western frontier, but Sher Singh himself did not look forward to his visit to Lord Ellenborough without some misgivings although under other circumstances his vanity would have been gratified by the opportunity of displaying his power and magnificence. He felt his incapacity as a ruler and he needlessly feared that he might be called to account for Sikh excesses and for a suspected intercourse with the hostile Ameers of Sindh then trembling for their fate and even that the subjugation of the Punjab was to be made the stepping stone to the complete reduction of Afghanistan He had no confidence in himself and he dreaded the vengeance of his followers who believed him capable of sacrificing the Khalsa to his own interests Nor was Dhian Singh supposed to be willing that the Muharaja should meet the Governor General and his suspicious temper made him apprehensive that his sovereign might induce the English Viceroy to accede to his ruin or to the reduction of his exotic influence. Thus both Sher Singh and his Minister perhaps rejoiced that a misunderstanding which prevented the reception at Loodiana of Lehna Singh Mujeetheea was seized hold of by the English to render a meeting doubtful or impossible * Lord Ellenborough justly

* On several occasions, Raja Dhian Singh expressed his apprehensions of an English invasion, as also did Muharaja Sher Singh (See, for instance, Mr Clerk to Government, 2nd Jan 1842) The writer of the article in the *Calcutta Review* (No II p 493), who is believed to be Lieut. Col Lawrence, admits Dhian Sing's aversion to a meeting between his sovereign and the British Governor-General. The reviewer

took offence at a slight which, however unwittingly had been really offered to him, he was not easily appeased, and when the personal apologies of the Minister, accompanied by the young heir-apparent, had removed every ground of displeasure, the appointed time, the beginning of January, 1843, for the breaking-up of the

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likewise describes Sher Singh's anxiety at the time, but considers him to have been desirous of throwing himself unreservedly on English protection, as doubtless he might have been, had he thought himself secure from assassination, and that Lord Ellenborough would have kept *him* seated on the throne of Lahore at all hazards

About the suspected hostile intercourse with the Ameers of Sindh, see Thornton's *History of India*, vi 447. The Sikhs, however, were never required to give any explanation of the charges

The misunderstanding to which Sirdar Lehna Singh was a party was simply as follows —The Sirdar had been sent to wait upon the Governor-General on his arrival on the frontier, according to ordinary ceremonial It was arranged that the Sirdar should be received by his lordship at Loodiana, and the day and hour were fixed, and preparations duly made. Mr Clerk went in person to meet the chief, and conduct him to the Governor-General's presence, *his* understanding being that he was to go half the distance or so towards the Sikh encampment The Sirdar understood or held that Mr Clerk should or would come to his tent and thus he sat still while Mr. Clerk rested half way for two hours or more Lord Ellenborough thought the excuse of the Sirdar frivolous, and that offence was wantonly given, and he accordingly required an explanation to be afforded (Government to Mr. Clerk 15th Dec. 1842) There is some reason to believe that the Lahore Vukeel, who was in the interest of Raja Dhian Singh, misled the obnoxious Lehna Singh about the arrangements for conducting him to the Governor-General's tents, with the view of discrediting him both with his own master and with the English.

large army had arrived and the Governor General did not care to detain his war worn regiments any longer from their distant stations. No interview thus took place with Sher Singh but the boy Prince Pertab Singh was visited by Lord Ellenborough and the rapidity with which a large escort of Sikh troops was crossed over the Sutlej when swollen with rain, and the alacrity and precision with which they manœuvred deserved to have been well noted by the English captains, proud as they had reason to be of the numbers and achievements of their own troops. The Prince likewise reviewed the Anglo-Indian forces and the Sikh chiefs looked with interest upon the defenders of Jellalabad and with unmixed admiration upon General Nott followed by his valiant and compact band At last the armed host broke up the plains of Feerozpoor were no longer white with numerous camps, and the relieved Sher Singh hastened or was hurried, to Amritsir to return thanks to God that a great danger had passed away This being over, he received Dost Mahomed Khan with distinction at Lahore, and in February (1843) entered into a formal treaty of friendship with the released Ameer which said nothing about the English gift of Jellalabad.*

But Sher Singh principally feared his own chiefs and subjects, and although the designed or fortuitous murder of Maee Chund Kour in June, 1842 † relieved him

* Government to Mr Clerk 15th Feb. and 17th March, 1843

† Mr. Clerk to Government, 15th June, 1842. The widow of Maharaja Khurruk Singh was so severely beaten, as was said by her female attendants, that she almost immediately expired The only explanation offered was that she had chidden the servants in

a petty Prince dependent on the English, but who had been denounced as a traitor for a year past,* openly proceeded from the neighborhood of Kurnal, and joined the division of the Sikh army under Runjor Singh, which had crossed the Jalundhur Dooab, to the neighborhood of Loodiana. The important town had been denuded of its troops to swell the first army of defence, and it was but slowly and partially garrisoned by fresh regiments arriving from the eastward, although it covered the several lines of approach from the Jumna towards Feerozpoor.† Early in January the Raja of Ladwa returned to withdraw his family from his fief of Buddowal

* Major Broadfoot to government, 13th December, 1844 This chief received the title of Raja from Lord Auckland, partly as a compliment to Runjeet Singh, to whom he was related, and partly in approbation of his liberality in providing the means of throwing a bridge across the classical Sursootee, at Thanehsir He was a reckless, dissipated man, of moderate capacity, but he inherited the unsettled disposition of his father, Goordut Singh, who once held Kurnal and some villages to the east of the Jumna, and who caused the English some trouble between 1803 and 1809

† It is not clear why Loodiana was not adequately garrisoned, or rather covered, by the troops which marched from Meerut after the battle of P'heerooshuhur. The Governor-General's attention was indeed chiefly given to strengthening the main army in its unsupported position of Feerozpoor,—the real military disadvantage of which he had ample reason to deplore, while amidst his difficulties it may possibly have occurred to his lordship, that the original policy of 1809—of being strong on the Jumna rather than on the Sutlej—was a truly wise one with reference to the *avoidance* of a war with the Sikhs

The desire of being in force near the capitals of the Punjab and the main army of the Sikhs, likewise induced Lord Hardinge to direct Sir Charles Napier to march from Sindh, without heeding Mooltan, although, as his Lordship publicly acknowledged, that

near Loodiana, and he took the opportunity of burning a portion of the cantonment at the latter place which the paucity of infantry and the want of cavalry on the spot enabled him to do with impunity About the same time, the main army of the Sikhs observing the supineness of their opponents began to recross the Sutlej and to construct a bridge-head to secure the freedom of their passage. The English were unwillingly induced to let the Sikhs labor at this work, for it was feared that an attack would bring on a general engagement, and that the want of ammunition would prevent a battle being won or a victory being completed The Sikhs naturally exulted and they proclaimed that they would again fall upon the hated foreigners Nor were their boasts altogether disbelieved, the disadvantages of Feerozpoor as a frontier post became more and more apparent, and the English began to experience difficulty in obtaining supplies from the country they had annexed by the pen without having secured by the sword The petty fort of Mookutsur where Govind repulsed his Moghul pursuers after his flight from Chumkowr was successfully defended for a time against some provincial companies and the auxiliaries of Beekaneer which like the legionaries themselves were deficient in artillery ammunition. The equally petty fort of Dhurmkot was held, in defiance of the near presence of the right wing of the English army and other defensible places towards Sirhind overawed the population and interfered with the peaceful march of convoys and detachments.*

victorious commander had been sent for when it was thought the campaign might become a series of sieges

* The hill station of Simlah, where many English families

On the 17th January, 1846, Major-General Sir Harry Smith was sent with a brigade to capture Dhurmkot, which was surrendered without bloodshed, and the transit of grain to the army was thus rendered more secure. The original object of Sir Harry Smith's diversion was to cover the march of the large convoy of guns, ammunition, and treasure in progress to Feerozpoor, as well as to clear the country of partizan troops which restricted the freedom of traffic, but when it became known that Runjor Singh had crossed the Sutlej in force and threatened Loodiana, the general was ordered to proceed to the relief of that place. On the 20th of January he encamped at the trading town of Jugraon, within twenty-five miles of his destination, and the authorities of the son of Futteh Singh Alhoowaleed, of the treaty of 1805, to whom the place belonged, readily allowed him to occupy its well-built fort. It was known on that day that Runjor Singh was in position immediately to the westward of Loodiana, and that he had thrown a small garrison into Buddowal, which lay about eighteen miles distant on the direct road from Jugraon. The British detachment, which had been swelled by reinforcements to four regiments of

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reside, and which is near the Sutlej, and the equally accessible posts of Kussowlee and Subathoo, were at this time likewise threatened by the Lahore feudatory of Mundee, and some Sikh partizans, and as the regiments usually stationed at these places had been wholly withdrawn, it would not have been difficult to have destroyed them But the local British authorities were active in collecting the quotas of the hill Rajpoots, and judicious in making use of their means, and no actual incursion took place, although a turbulent sharer in the sequestered Anundpoor-Makhowal had to be called to account

infantry, three regiments of cavalry and eighteen guns marched soon after midnight, and early on the morning of the 21st January it was learnt that the whole Sikh army, estimated at ten thousand men, had moved to Buddowal during the preceding day That place was then distant eight miles from the head of the column and Sir Harry Smith considered that if he made a detour to the right, so as to leave the Sikhs about three miles on his other flank, he would be able to effect his junction with the Loodiana brigade without molestation A short halt took place to enable the baggage to get somewhat a head and it was arranged that the long strings of animals should move parallel to the troops and on the right flank, so as to be covered by the column. As Buddowal was approched, the Sikhs were seen to be in motion likewise, and apparently to be bent on intercepting the English but as it was not wished to give them battle Sir Harry Smith continued his march inclining however still more to his right, and making occasional halts with the cavalry to enable the infantry to close up it having fallen behind owing to the heavy nature of the ground. But the Sikhs were resolved on fighting and they commenced a fire of artillery on the British horse, which obtained a partial cover under sand banks while the guns of the detachment opened upon the Sikhs and served to keep their line in check. By the time that the British infantry and small rear guard of cavalry had closed up the fire of the Sikhs had begun to tell, and it was thought that a steady charge by the infantry would throw them into disorder and would allow the baggage to pass on, and give time to the Loodiana troops to come to the aid of

their comrades. A close contest was indeed the prompting of every one's heart at the moment; but as the regiments of foot were being formed into line, it was found that the active Sikhs had dragged guns, unperceived, behind sand hillocks to the rear of the column,—or, as matters then stood, that they had turned their enemy's left flank. These guns threw their enfilading shot with great rapidity and precision, and whole sections of men were seen to fall at a time without an audible groan amid the hissing of the iron storm. The ground was heavy, the men were wearied with a march of nine hours and eighteen miles, and it became evident that a charge might prove fatal to the exhausted victors The infantry once more resumed its march, and its retirement or retreat upon Loodiana was covered with skill and steadiness by the cavalry The Sikhs did not pursue, for they were without a leader or without one who wished to see the English beaten. Runjor Singh let his soldiers engage in battle, but that he accompanied them into the fight is more than doubtful, and it is certain that be did not essay the easy task of improving the success of his own men into the complete reverse of his enemy. The mass of the British baggage was at hand, and the temptation to plunder could not be resisted by men who were without orders to conquer. Every beast of burden which had not got within sight of Loodiana, or which had not, timorously but prudently, been taken back to Jugraon, when the firing was heard, fell into the hands of the Sikhs, and they were enabled boastfully to exhibit artillery store carts as if they had captured British cannon.*

* Compare the Governor-General to the Secret Committee

Loodiana was relieved, but an unsuccessful skirmish added to the belief so pleasing to the prostrate princes of India, that the dreaded army of their foreign masters had at last been foiled by the skill and valor of the disciples of Govind, the kindred children of their own soil. The British Sepoys glanced furtively at one another or looked towards the east, their home, and the brows of Englishmen themselves grew darker as they thought of struggles rather than triumphs. The Governor-General and Commander in Chief trembled for the safety of that siege train and convoy of ammunition so necessary to the efficiency of an army which they had launched in haste against aggressors and received back shattered by the shock of opposing arms. The leader of the beaten brigades saw before him a tarnished name after the labors of a life, nor was he met by many encouraging hopes of rapid retribution The Sikhs on their side were correspondingly elated the presence of European prisoners added to their triumph Lal Singh and Tej Singh shrank within themselves with fear and Golab Singh who had been spontaneously hailed as Minister and leader, began to think that the Khalsa was really formidable to one greater far than himself and he arrived at Lahore on the 27th of January to give unity and vigor to the counsels of

19th January and 3rd February and Lord Gough's despatch of the 1st February, 1845 After the skirmish of the 21st January there were found to be sixty nine killed, sixty-eight wounded, and seventy-seven missing of which last, several were taken prisoners, while others rejoined their corps in a day or two. Of the prisoners, Mr Barron, an assistant-surgeon, and some European soldiers, were taken to Lahore.

the Sikhs.* The army under Tej Singh had recrossed the Sultej in force, it had enlarged the bridge-head before alluded to, and so entrenched a strong position in the face of the British divisions. The Sikhs seemed again to be about to carry the war into the country of their enemy, but Golab Singh came too late,—their fame had reached its height, and defeat and subjection speedily overtook them.

During the night of the 22nd January, Runjor Singh marched from Buddowal to a place on the Sutlej about fifteen miles below Loodiana, where he immediately collected a number of boats as if to secure the passage of the river The object of this movement is not known, but it may have been caused by a want of confidence on the part of the Sikhs themselves, as there were few regular regiments among them, until joined by a brigade of four battalions and some guns from the main army, which gave them a force of not less than fifteen thousand combatants Sir Harry Smith immediately occupied the deserted position of the enemy, and he was himself reinforced simultaneously with the Sikhs by a brigade from the main army of the English. On the 28th January the General marched with his eleven thousand men, to give the enemy battle or to reconnoitre his position and assail it in some degree of form should circumstances render such a course the most prudent. The Sikhs were nearly ten miles distant, and midway it was learnt that they were about to move with the avowed object of proceeding with a part or the whole of their force to relieve the

* Compare the Governor-General to the Secret Committee, 3rd February, 1846.

fort of Goongrana or to occupy the neighboring town of Jugraon both of which posts were close to the line of the British communications with the Jumna. On reaching the edge of the table land, bounding the sunken belt of many miles in breadth within which the narrower channel of the Sutlej proper winds irregularly, a portion of the Sikhs were observed to be in motion in a direction which would take them clear of the left of the British approach, but as soon as they saw that they were liable to be attacked in flank, they faced towards their enemy and occupied with their right the village of Boondree, and with their left the little hamlet of Aleewal, while with that activity necessary to their system, and characteristic of the spirit of the common soldiers, they immediately began to throw up banks of earth before their guns where not otherwise protected such as would afford some cover to themselves and offer some impediment to their assailants. An immediate collision was inevitable and the British Commander promptly gave the order for battle. The regiments of cavalry which headed the advance opened their glittering ranks to the right and left, and made apparent the serried battalions of infantry and the frowning batteries of cannon. The scene was magnificent and yet overawing the eye included the whole field and glanced approvingly from the steady order of one foe to the even array of the other, all bespoke gladness of mind and strength of heart, but beneath the elate looks of the advancing warriors there lurked that fierce desire for the death of his fellows which must ever impel the valiant soldier When thus deployed, the lines of battle were not truly parallel The Sikh line inclined towards and extended

beyond the British right, while the other flanks were, for a time, comparatively distant. The English had scarcely halted during their march of eight miles, even to form their line; but the Sikhs nevertheless commenced the action. It was perceived by Sir Harry Smith that the capture of the village of Aleewal was of the first importance, and the right of the infantry was led against it. A deadly struggle seemed impending, for the Sikh ranks were steady and the play of their guns incessant; but the holders of the post were battalions of hill men, raised because their demeanor was sober and their hearts indifferent to the Khalsa, and after firing a straggling volley, they fled in confusion, headed by Runjor Singh, their immediate leader, and leaving the brave Sikh artillerymen to be slaughtered by the conquerors. The British cavalry of the right made at the same time a sweeping and successful charge, and one half of the opposing army was fairly broken and dispersed, but the Sikhs on their own right seemed to be outflanking their opponents in spite of the exertions of the English infantry and artillery, for there the more regular battalions were in line, and the true Sikh was not easily cowed. A prompt and powerful effort was necessary, and a regiment of European lancers, supported by one of Indian cavalry, was launched against the even ranks of the Lahore infantry. The Sikhs knelt to receive the orderly but impetuous charge of the English warriors, moved alike by noble recollections of their country, by military emulation, and by personal feelings of revenge, but at the critical moment, the unaccustomed discipline of many of Govind's champions failed them. They rose

yet they reserved their fire and delivered it together at the distance of a spear's throw, nor was it until the mass had been three times ridden through that the Sikhs dispersed. The charge was wisely planned and bravely made, but the ground was more thickly strewn with the bodies of victorious horsemen than of beaten infantry An attempt was made to rally behind Boondree but all resistance was unavailing the Sikhs were driven across the Sutlej, more than fifty pieces of cannon were taken, and the general forgot his sorrows and the soldiers their sufferings and indignities in the fulness of their common triumph.*

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* Compare Sir Harry Smith's despatch of the 30th January and Lord Gough's despatch of the 1st February 1846. (*Parliamentary papers* 1846).—The loss sustained was 151 killed, 413 wounded, and 25 missing

The *Calcutta Review* No. XVI. p 499., states that Sir Harry Smith required some pressing before he would engage the Sikhs, after his reverse at Buddowal. That active leader however was in no need of such promptings, and had adequate reinforcements reached him sooner than they did, the battle of Aleewal would have been sooner fought. It may likewise be here mentioned, that neither does the reviewer throughout his article do fair justice to Lord Gough, nor in a particular instance, to the commissariat department of the army Thus, with regard to the Commander in Chief, it is more than hinted (see p. 497), that Lord Hardinge was in no way to blame,—that is that Lord Gough was to blame,—for the delay which occurred in attacking the Sikhs at Pheerooshuhur It may be difficult to ascertain the causes, or to apportion the blame, but the Governor General can proudly stand on his acknowledged merits and services, and wants no support at the expense of an ancient comrade in arms Again with regard to the commissariat, it is stated at p. 488 that supplies which the head of the department in the field asked six

The victory was equally important and opportune, and the time-serving Golab Singh, whose skill and capacity might have protracted the war, first reproached the vanquished Sikhs for rashly engaging in hostilities with their colossal neighbor, and then entered into negotiations with the English leaders.* The Governor-General was not displeased that the Lahore authorities should be ready to yield, for he truly felt that to subjugate the Punjab in one season, to defeat an army

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weeks to furnish, were procured by Major Broadfoot in six days The commissariat department could only use money and effect purchases by contract, or in the open market, but Major Broadfoot could summarily require "protected chiefs," on pain of confiscation, to meet all his demands, and the writer of the article might have learnt, or must have been aware, that the requisitions in question led to one chief being disgraced by the imposition of a fine, and had some share in the subsequent deposal of another Had the British Magistrates of Delhi, Seharunpoor, Bareilly, and other places, been similarly empowered to seize by force the grain and carriage within their limits, there would have been no occasion to disparage the commissariat department Further, it is known to many, and it is in itself plain, that had the military authorities been required, or allowed, to prepare themselves as they wished, they as simple soldiers, who had no financial difficulties to consider, would have been amply prepared with all that an army of invasion or defence could have required, long before the Sikhs crossed the Sutlej Lord Hardinge was chiefly responsible for the timely and adequate equipment of the army, in anticipation of a probable war, and with the Governor-General in the field, possessed of superior and anomalous powers, the Commander-in-Chief could only be held reponsible—and that but to a limited extent—for the strategy of a campaign or the conduct of a battle

* Compare the Governor-General to the Secret Committee, of the 19th February, 1846

as numerous as his own, to take two capitals, and to lay siege to Mooltan, and Jammoo and Peshawur,—all within a few months,—was a task of difficult achievement and full of imminent risks. The dominion of the English in India hinges mainly upon the number and efficiency of the troops of their own race which they can bring into the field, and a campaign in the hot weather would have thinned the ranks of the European regiments under the most favorable circumstances, and the ordinary recurrence of an epidemic disease would have proved as fatal to the officers of every corps present as to the common soldiers. But besides this important consideration it was felt that the minds of men throughout India were agitated, and that protracted hostilities would not only jeopardize the communications with the Jumna, but might disturb the whole of the north western provinces, swarming with a military population which is ready to follow any standard affording pay or allowing plunder, and which already sighs for the end of a dull reign of peace. Bright visions of standing triumphant on the Indus and of numbering the remotest conquests of Alexander among the provinces of Britain doubtless warmed the imagination of the Governor General, but the first object was to drive the Sikhs across the Sutlej by force of arms, or to have them withdrawn to their own side of the *river by the unconditional submission of the chiefs and* the delegates of the army for until that were done, no progress could be said to have been made in the war, and every petty chief in Hindostan would have silently prepared for asserting his independence, or for enlarging his territory on the first opportunity But

the total dispersion of so large and so well equipped a body of brave men, as that which lay within sight of the available force of the British Government, could not be accomplished by one defeat, if the chiefs of the country were to be rendered desperate, and if all were to place their valor and unanimity under the direction of one able man. The English, therefore, intimated to Golab Singh their readiness to acknowledge a Sikh sovereignty in Lahore after the army should have been disbanded, but the Raja declared his inability to deal with the troops, which still overawed him and other well-wishers to the family of Runjeet Singh. This helplessness was partly exaggerated for selfish objects; but time pressed, the speedy dictation of a treaty under the walls of Lahore was essential to the British reputation, and the views of either party were in some sort met by an understanding that the Sikh army should be attacked by the English, and that when beaten it should be openly abandoned by its own Government, and further, that the passage of the Sutlej should be unopposed and the road to the capital laid open to the victors. Under such circumstances of discreet policy and shameless treason was the battle of Subraon fought.*

The Sikhs had gradually brought the greater part of their force into the intrenchment on the left bank of the Sutlej, which had been enlarged as impulse prompted

* Compare the Governor-General's letter to the Secret Committee, of the 19th February, 1846; from which, however, those only who were mixed up with the negotiations can extract aught indicative of the understanding with Golab Singh which is alluded to in the text

or as opportunity seemed to offer They placed sixty seven pieces of artillery in battery, and their strength was estimated at thirty five thousand fighting men, but it is probable that twenty thousand would exceed the truth, and of that reduced number, it is certain that all were not regular troops. The intrenchment likewise showed a fatal want of unity of command and of design and at Subraon as in the other battles of the campaign the soldiers did everything and the leaders nothing Hearts to dare and hands to execute were numerous, but there was no mind to guide and animate the whole —each inferior commander defended his front according to his skill and his means, and the centre and left, where the disciplined battalions were mainly stationed had batteries and salient points as high as the stature of a man and ditches which an armed soldier could not leap without exertion but a considerable part of the line exhibited at intervals the petty obstacles of a succession of such banks and trenches as would shelter a crouching marksman or help him to sleep in security when no longer a watcher This was especially the case on the right flank where the looseness of the river sand rendered it impossible to throw up parapets without art and labor, and where irregular troops the least able to remedy such disad vantages had been allowed or compelled to take up their position. The flank in question was mainly guarded by a line of two hundred "Zumbooruks" or fal conets but it derived some support from a salient bat tery and from the heavy guns retained on the opposite bank of the river* Tej Singh commanded in this

* The ordinary belief that the intrenchments of Subraon were

intrenchment, and Lal Singh lay with his horse in loose order higher up the stream, watched by a body of British cavalry. The Sikhs, generally, were somewhat cast down by the defeat at Aleewal, and by the sight of the unhonored remains ef their comrades floating down the Sutlej , but the self-confidence of a multitude soon returns . they had been cheered by the capture of a post of observation established by the English and left unoccupied at night, and they resumed their vaunting practice of performing their militaty exercises almost within hail of the British pickets. Yet the judgment of the old and experienced could not be deceived , the dangers which threatened the Sikh people pressed upon their minds , they saw no escape from domestic anarchy or from foreign subjection, and the grey-headed chief Sham Singh of Ataree, made known his resolution to die in the first conflict with the enemies of his race, and so to offer himself up as a sacrifice of propitiation to the spirit of Govind and to the genius of his mystic commonwealth.

In the British camp the confidence of the soldiery was likewise great, and none there despaired of the fortune of England. The spirits of the men had been raised by the victory of Aleewal, and early in February a formidable siege train aud ample stores of ammunition

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jointly planned and executed by a French and a Spanish colonel, is as devoid of foundation as that the Sikh army was rendered effective solely by the labors and skill of French and Italian General's Hurbon the brave Spaniard, and Mouton the Frenchman,who were at Subraon, doubtless exerted themselves where they could, but their authority or their influence did not exten beyond a regiment or a brigade, and the lines showed no tr whatever of scientific skill or of unity of design

arrived from Delhi The Sepoys looked with delight upon the long array of stately elephants dragging the huge and heavy ordnance of their predilections, and the heart of the Englishman himself swelled with pride as he beheld these dread symbols of the wide dominion of his race. It was determined that the Sikh position should be attacked on the 10th February and various plans were laid down for making victory sure, and for the speedy gratification of a burning resentment. The officers of artillery naturally desired that their guns the representatives of a high art, should be used agreeably to the established rules of the engineer, or that ramparts should be breached in front and swept in flank before they were stormed by defenceless battalions but such deliberate tediousness of process did not satisfy the judgment or the impatience of the commanders, and it was arranged that the whole of the heavy ordnance should be planted in masses opposite particular points of the enemy's intrenchment, and that when the Sikhs had been shaken by a continuous storm of shot and shell the right or weakest part of the position should be assaulted in line by the strongest of the three investing divisions which together mustered nearly fifteen thousand men. A large body of British cavalry was likewise placed to watch the movements of Lal Singh, and the two divisions which lay near Feerozpoor were held ready to push across the Sutlej as soon as victory should declare itself. The precise mode of attack was not divulged or indeed finally settled until noon of the preceding day, for it was desired to surprize the commanding post of observation, which indifference or negligence had allowed to fall into the hands

of the Sikhs a short time before The evening and the early hours of darkness of the 9th February were thus occupied with busy preparations, the hitherto silent camp poured all its numbers abroad; soldiers stood in groups, talking of the task to be achieved by their valour, officers rode hastily along to receive or deliver orders, and on that night what Englishman passed battalion after battalion to seek a short repose or a moment's solitary communion, and listened as he went to the hammering of shells and the piling of iron shot, or beheld the sentinel pacing silently along by the gleam of renewed fires, without recalling to mind his heroic King and the eve of Agincourt, rendered doubly immortal by the genius of Shakspeare? *

The British divisions advanced in silence, amid the darkness of night and the additional gloom of a thick haze. The coveted post was found unoccupied, the Sikhs seemed everywhere taken by surprize, and they

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* "Now entertain conjecture of a time,
When creeping murmur and the poring dark
Fill the wide vessel of the universe,
From camp to camp, thro' the foul womb of night,
The hum of either army stilly sounds,
That the fix'd sentinels almost receive
The secret whispers of each other's watch,
Fire answers fire and through their paly flames
Each battle sees the other's umber'd face
Steed threatens steed, in high and boastful neighs
Piercing the night's dull ear; and from the tents
The armorers, accomplishing the knights,
With busy hammers closing rivets up,
Give dreadful note of preparation."

Henry V Act iv. chorus

beat clamorosly to arms when they saw themselves about to be assailed The English batteries opened at sunrise and for upwards of three hours an incessant play of artillery was kept up upon the general mass of the enemy The round shot exploded tumbrils or dashed heaps of sand into the air the hollow shells cast their fatal contents fully before them and the devious rockets sprang aloft with fury to fall hissing amid a flood of men but all was in vain the Sikhs stood unappalled and " flash for flash returned and fire for fire The field was resplendent with embattled warriors one moment umbered in volumes of sulphurous smoke and another brightly apparent amid the splendor of beaming brass and the cold and piercing rays of polished steel. The roar and loud reverberation of the ponderous ordnance added to the impressive interest of the scene, and fell gratefully upon the ear of the intent and enduring soldier But as the sun rose higher it was felt that a distant and aimless cannonade would still leave the strife to be begun and victory to be achieved, by the valiant hearts of the close fighting infantry The guns ceased for a time, and each warrior addressed himself in silence to the coming conflict —a glimmering eye and a firmer grasp of his weapon alone telling of the mighty spirit which wrought within him The left division of the British army advanced in even order and with a light step to the attack but the original error of forming the regiments in line instead of in column rendered the contest more unequal than such assaults need necessarily be. Every shot from the enemy s lines told upon the expanse of men and the greater part of the division was driven back by

the deadly fire of muskets and swivels and enfilading artillery. On the extreme left, the regiments effected an entrance amid the advanced backs and trenches of petty outworks where possession could be of little avail, but their comrades on the right were animated by the partial success, they chafed under the disgrace of repulse, and forming themselves instinctively into wedges and masses, and headed by an old and fearless leader, they rushed forward in wrath * With a shout they leaped the ditch, and upswarming, they mounted the rampart, and stood victorious amid captured cannon. But the effort was great, the Sikhs fought with steadiness and resolution, guns in the interior were turned upon the exhausted assailants, and the line of trench alone was gained Nor was this achievement the work of a moment. The repulse of the first assailants required that the central division should be brought forward, and these supporting regiments also moved in line against ramparts higher and more continuous than the barriers which had foiled the first efforts of their comrades They too recoiled in confusion before the fire of the exulting Sikhs, but at the distance of a furlong they showed both their innate valour and habitual discipline by rallying and returning to the charge. Their second assault was aided on the left by the presence, in the trenches of that flank, of the victorious first division, and thus the regiments of the centre likewise became, after a fierce struggle, on their own right possessed of as many of the enemy's batteries as lay to their immediate front.

* Sir Robert Dick was mortally wounded close to the trenches while cheering on his ardent followers.

The unlooked for repulse of the second division, and the arduous contest in which the first was engaged might have led a casual witness of the strife to ponder on the multitude of varying circumstances which determine success in war, but the leaders were collected and prompt and the battalions on the right, the victors of Aleewal were impelled against the opposite flank of the Sikhs, but there as on all other points attacked destruction awaited brave men. They fell in heaps and the first line was thrown back upon the second, which, nothing daunted moved rapidly to the assault. The two lines mingled their ranks and rushed forward in masses just as the second division had retrieved its fame, and as a body of cavarly had been poured into the camp from the left to form that line of advance which surpassed the strength of the exhausted infantry

Openings were thus everywhere effected in the Sikh intrenchments, but single batteries still held out the interior was filled with courageous men who took advantage of every obstacle, and fought fiercely for every spot of ground. The traitor Tej Singh indeed instead of leading fresh men to sustain the failing strength of the troops on his right, fled on the first assault, and either accidentally or by design sank a boat in the middle of the bridge of communication But the ancient Sham Singh remembered his vow, he clothed himself in simple white attire as one devoted to death and calling on all around him to fight for the Gooroo who had promised everlasting bliss to the brave he repeatedly rallied his shattered ranks, and at last fell a martyr on a heap of his slain countrymen. Others might be seen standing on the ramparts amid showers of balls,

waving defiance with their swords, or telling the gunners where the fair-haired English pressed thickest together. Along the stronger half of the battlements, and for the period of half an hour, the conflict raged sublime in all its terrors The parapets were sprinkled with blood from end to end, the trenches were filled with the dead and the dying. Amid the deafening roar of cannon, and the multitudinous fire of musketry, the shouts of triumph or of scorn were yet heard, and the flashing of innumerable swords was yet visible, or from time to time exploding magazines of powder, threw bursting shells and beams of wood and banks of earth high above the agitated sea of smoke and flame which enveloped the host of combatants, and for a moment arrested the attention amid all the din and tumult of the tremendous conflict. But gradually each defensible position was captured, and the enemy was pressed towards the scarcely fordable river, yet, although assailed on either side by squadrons of horse and battalions of foot, no Sikh offered to submit, and no disciple of Govind asked for quarter. They everywhere showed a front to the victors, and stalked slowly and sullenly away, while many rushed singly forth to meet assured death by contending with a multitude. The victors looked with stolid wonderment upon the indomitable courage of the vanquished, and forbore to strike when the helpless and the dying frowned unavailing hatred But the warlike rage, or the calculating policy of the leaders, had yet to be satisfied, and standing with the slain heaped on all side around them, they urged troops of artillery almost into the waters of the Sutlej to more thoroughly destroy the army which had so long scorned

their power No deity of heroic fable received the living within the oozy gulphs of the oppressed stream and its current was choked with added numbers of the dead and crimsoned with the blood of a fugitive multitude.

"Such is the lust of never-dying fame."

But vengeance was complete the troops defiled with dust and smoke and carnage stood mute indeed for a moment, until the glory of their success rushing upon their minds, they gave expression to their feelings and hailed their victorious commanders with reiterated shouts of triumph and congratulation *

On the night of the victory some regiments were pushed across the Sutlej opposite Feerozpoor—no enemy was visible—and on the 12th February the

* Compare Lord Gough's despatch of the 13th February 1846, and Macgregor's *History of the Sikhs* ii. 154, &c. The casualties on the side of the British were 320 killed, and 2,083 wounded. The loss of the Sikhs, perhaps exceeded 5,000, and possibly amounted to 8,000, the lower estimate of the English despatches.

The Commander in Chief estimated the force of the Sikhs at 30,000 men, and it was frequently said they had thirty six regiments in position but it is nevertheless doubtful whether there were so many as 20,000 *armed* men in the trenches. The number of the actual assailants may be estimated at 15,000 effective soldiers

Subraon or correctly Subrahan, the name by which the battle is known, is taken from that of a small village, or rather two small villages, in the neighborhood. The villages in question were inhabited by the subdivision of a tribe called Subrah, or in the plural, Subrahan and hence the name became applied to their place of residence, and has at last become identified with a great and important victory

fort of Kussoor was occupied without opposition. On the following day the army encamped under the walls of that ancient town, and it was ascertained that the Sikhs still held together to the number of twenty thousand men in the direction of Amritsir But the power of the armed representatives of the Khalsa was gone, the holders of treasure and food, and all the munitions of war, had first passively helped to defeat them, and then openly joined the enemy, and the soldiery readily assented to the requisition of the court that Golab Singh, their chosen Minister, should have full powers to treat with the English on the already admitted basis of recognising a Sikh government in Lahore On the 15th of the month the Raja and several other chiefs were received by the Governor-General at Kusoor, and they were told that Dhuleep Singh would continue to be regarded as a friendly sovereign, but that the country between the Beeas and Sutlej would be retained by the conquerors, and that a million and a half sterling must be paid as some indemnity for the expenses of the war, in order, it was said, that all might hear of the punishment which had overtaken aggressors, and become fully aware that inevitable loss followed vain hostilities with the unoffending English. After a long discussion the terms were reluctantly agreed to, the young Muharaja came and tendered his submission in person, and on the 20th February the British army arrived at the Sikh capital Two days afterwards a portion of the citadel was garrisoned by English regiments, to mark more fully to the Indian world that a vaunting enemy had been effectually humbled, for throughout the breadth of the land the chiefs talked, in

the bitterness of their hearts, of the approaching down fall of the stern unharmonizing foreigners.*

The Governor General desired not only to chastise the Sikhs for their past aggressions but to overawe them for the future and he had thus chosen the Beeas as offering more commanding positions, with reference to Lahore than the old boundary of the Sutlej With the same object in view he had originally thought Raja Golab Singh might advantageously be made independent in the hills of Jummoo.† Such a recognition by the British government had, indeed, always been one of the wishes of that ambitious family but it was not perhaps remem bered that Golab Singh was still more desirous of becoming the acknowledged Minister of the dependent Punjab,‡ nor was it perhaps thought that the overtures

* Compare the Governor General to the Secret Committee, under dates the 19th February and 4th March, 1846

† Compare the Governor General to the Secret Committee, of 3rd and 19th February 1846

‡ This had been the aim of the family for many years or at least, from the time that Dhian Singh exerted himself to remove Colonel Wade, in the hope that a British representative might be appointed who would be well disposed towards himself, which he thought Colonel Wade was not. Mr Clerk was aware of both schemes of the Lahore Minister although the greater prominence was naturally given to the project of rendering the Jummoo chiefs independent, owing to the aversion with which they were regarded after Nao Nihal Singh's death.

Had the English said that they desired to see Golab Singh remain Minister and had they been careless whether Lal Singh lived or was put to death it is highly probable that a fair and vigorous government would have been formed, and also that the occupation of Lahore, and perhaps the second treaty of 1846, need never have taken place.

of the Raja—after the battle of Aleewal had foreboded the total rout of the Sikh army—were all made in the hope of assuring to himself a virtual viceroyalty over the whole dominion of Lahore. Golab Singh had been appointed Vuzeer by the chiefs and people when danger pressed them, and he had been formally treated with as Minister by the English when the Governor-General thought time was short, and his own resources distant ;* but when Lal Singh saw that after four pitched battles the English Viceroy was content or compelled to leave Lahore a dependent ally, he rejoiced that his undiminished influence with the mother of the Maharaja would soon enable him to supplant the obnoxious chief of Jummoo. The base sycophant thus congratulated himself on the approaching success of all his treasons, which had simply for their object his own personal aggrandizement at the expense of Sikh independence. Golab Singh felt his inability to support himself without the countenance of the English, but they had offered him no assurance of support as Minister, and he suddenly perplexed the Governor-General by asking him what *he* was to get for all he had done to bring about a speedy peace, and to render the army an easy prey.

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* Compare the Governor-General's letter to the Secret Committee, of the 3d and 19th February, 1846 In both of these despatches Lord Hardinge indicates that he intended to do something for Golab Singh, but he does not state that he designed to make him independent of Lahore, nor does he say that he told the Sikh Chiefs the arrangements then on foot might include the separation of Jummoo, and the truth would seem to be, that in the first joy of success the scheme of conciliating the powerful Raja remained in a manner forgotten.

It was remembered that at Kussoor he had said the way to carry on a war with the English was to leave the sturdy infantry intrenched and watched and to sweep the open country with cavalry to the gates of Delhi and while negotiations were still pending and the season advancing it was desired to conciliate one who might render himself formidable in a day by joining the remains of the Sikh forces and by opening his treasures and arsenals to a warlike population.

The low state of the Lahore treasury and the anxiety of Lal Singh to get a dreaded rival out of the way enabled the Governor General to appease Golab Singh in a manner sufficiently agreeable to the Raja himself, and which still further reduced the importance of the successor of Runjeet Singh. The Raja of Jummoo did not care to be simply the master of his native mountains but as two thirds of the pecuniary indemnity required from Lahore could not be made good territory was taken instead of money and Cashmeer and the hill states from the Beeas to the Indus were cut off from the Punjab Proper and transferred to Golab Singh as a separate sovereign for a million of pounds sterling The arrangement was a dexterous one, if reference be only had to the policy of reducing the power of the Sikhs but the transaction scarcely seems worthy of the British name and greatness and the objections become stronger when it is considered that Golab Singh had agreed to pay sixty eight lakhs of rupees (680,000*l.*), as a fine to his paramount, before the war broke out,* and that the custom of the East as well as

* Major Broadfoot to Government, 5th May, 1845. The author

of the West requires the feudatory to aid his lord in foreign war and domestic strife. Golab Singh ought thus to have paid the deficient million of money as a Lahore subject, instead of being put in possession of Lahore provinces as an independent Prince The succession of the Raja was displeasing to the Sikhs generally, and his separation was less in accordance with his own aspirations than the ministry of Runjeet Singh's empire; but his rise to sovereign power excited nevertheless the ambition of others, and Tej Singh, who knew his own wealth, and was fully persuaded of the potency of gold, offered twenty-five lakhs of rupees for a princely crown and another dismembered province He was chid for his presumptuous misinterpretation of English principles of action, the arrangement with Golab Singh was the only one of the kind which took place, and the new ally was formally invested with the title of Muharaja at Amritsir on the 15th March, 1846 *

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never heard, and does not believe, that this money was paid by Golab Singh

* On this occasion "Muharaja" Golab Singh stood up, and with joined hands, expressed his gratitude to the British Viceroy,—adding, without however any ironical meaning, that he was indeed his "Zur-khureed," or gold-boughten slave!

In the course of this history there has, more than once, been occasion to allude to the unscrupulous character of Raja Golab Singh, but it must not therefore be supposed that he is a man malevolently evil He will, indeed, deceive an enemy and take his life without hesitation, and in the accumulation of money he will exercise many oppressions, but he must be judged with reference to the morality of his age and race, and to the necessities of his own position If these allowances be made, Golab Singh will be found an able and moderate man, who does little in an idle or

But a portion of the territory at first proposed to be made over to him was reserved by his masters the payments required from him were reduced by a fourth and they were rendered still more easy of liquidation by considering him to be the heir to the money which his brother Soochet Singh had buried in Feerozpoor *

Lal Singh became Minister once more but he and all the traitorous chiefs knew that they could not maintain themselves, even against the reduced army, when the English should have fairly left the country and thus the separation of Golab Singh led to a further departure from the original scheme. It was agreed that a British force should remain at the capital until the last day of December 1846 to enable the chiefs to feel secure while they reorganized the army and introduced order and efficiency into the administration The end of the year came but the chiefs were still helpless they clung to their foreign support, and gladly assented to an arrangement which leaves the English in immediate possession of the reduced dominion of Runjeet Singh, until his reputed son and feeble successor shall attain the age of manhood †

While the Governor General and Commander in Chief remained at Lahore at the head of twenty thousand men portions of the Sikh army came to the capital to be paid up and disbanded The soldiers showed

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wanton spirit, and who is not without some traits both of good humor and generosity of temper

* See Appendices XVIII., XIX. and XX., for the treaties with Lahore and Jummoo

† See Appendix XV., for the second treaty with Lahore

neither the despondency of mutinous rebels nor the effrontery and indifference of mercenaries, and their manly deportment added lustre to that valour which the victors had dearly felt and generously extolled. The men talked of their defeat as the chance of war, or they would say that *they* were mere imitators of unapproachable masters. But amid all their humiliation, they inwardly dwelt upon their future destiny with unabated confidence; and while gaily calling themselves inapt and youthful scholars, they would sometimes add, with a significant and sardonic smile, that the "Khalsa" itself was yet a child, and that as the commonwealth of Sikhs grew in stature, Govind would clothe his disciples with irresistible might and guide them with unequalled skill. Thus brave men sought consolation, and the spirit of progress which collectively animated them yielded with a murmur to the superior genius of England and civilization, to be chastened by the rough hand of power, and perhaps to be moulded to noblest purposes by the informing touch of knowledge and philosophy *

The separate sway of the Sikhs and the independence of the Punjab have come to an end, and England reigns the undisputed mistress of the broad and classic land of India Her political supremacy is more regular and systematic than the antique rule of the Brahmins and Kshutrees, and it is less assailable from without than

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* In March, 1846, or immediately after the war, the author visited the Sikh temples and establishments at Keeritpoor and Anundpoor-Makhowal At the latter place, the chosen seat of

the imperfect domination of the Mahometans, for in disciplined power and vastness of resources in unity of action and intelligence of design, her government surpasses the experience of the East and emulates the magnificent prototype of Rome. But the Hindoos made the country wholly their own and from sea to sea from the snowy mountains almost to the fabled bridge of Rama, the language of the peasant is still that of the twice born races the speech of the wild foresters and mountaineers of the centre and south has been permanently tinged by the old predominance of the Kshutrees and the hopes and fears and daily habits of myriads of men still vividly represent the genial myths and deep philosophy of the Brahmins which more than two thousand years ago arrested the attention of the Greeks The Mahometans entered the country to destroy but they remained to colonize, and swarms of the victorious races long continued to pour themselves over its rich plains modifying the language and ideas of the vanquished and becoming themselves altered by the contact until in the time of Akber the "Islam" of India *was a national system* and until in the present day the Hindoo and Mahometan do not practically differ more from one another than did the Brahmins and Kshutrees and Veisyas of the time of

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Govind, reliance upon the future was likewise strong and the grave priests or ministers said, by way of assurance, that the pure faith of the Khalsa was intended for all countries and times and added, by way of compliment, that the disciples of Nanuk would ever be grateful for the aid, which the stranger English had rendered in subverting the empire of the intolerant and oppressive Mahometans!

Munnoo and Alexander. They are different races with different religious systems, but harmonizing together in social life, and mutually understanding and respecting and taking a part in each other's modes and ways and doings They are thus silently but surely removing one another's differences and peculiarities, so that a new element results from the common destruction, to become developed into a faith or a fact in future ages. The rise to power of contemned Soodra tribes, in the persons of Mahrattas, Goorkhas, and Sikhs, has brought about a further mixture of the rural population and of the lower orders in towns and cities, and has thus given another blow to the reverence for antiquity The religious creed of the people seems to be even more indeterminate than their spoken dialects, and neither the religion of the Arabian prophet, nor the theology of the Veds and Poorans, is to be found pure except among professed Moollas and educated Brahmins, or among the rich and great of either persuasion Over this seething and fusing mass, the power of England has been extended and her spirit sits brooding. Her pre-eminence in the modern world may well excite the envy of the nations, but it behoves her to ponder well upon the mighty task which her adventurous children have set her in the East, and to be certain that her sympathizing labours in the cause of humanity are guided by intelligence towards a true and attainable end She rules supreme as the welcome composer of political troubles, but the thin superficies of her dominion rests tremblingly upon the convulsed ocean of social change and mental revolutions. Her own high civilization and the circumstances of her intervention

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isolate her in all her greatness she can appeal to the reason only of her subjects and can never lean upon the enthusiasm of their gratitude or predilection. To preserve her political ascendancy she must be ever prudent and circumspect, and to leave a lasting impress she must do more than erect palaces and temples the mere material monuments of dominion. Like Greece and Rome, she may rear edifices of surpassing beauty she may bridge gulphs and pierce mountains with the wand of wealth and science. Like these ancient peoples, she may even give birth in strange lands to such Kings as Herod the Great and to such historians as Flavius Josephus but, like imperial Rome, she may live to behold a Vortigern call in a Hengist, and a Syagrius yield to a Clovis. She may teach another Cymbeline the amenities of civilized life, and she may move another Attalus to bequeath to her another Pergamus These are tasks of easy achievement but she must also endeavor to give her poets and her sages an immortality among nations unborn, to introduce laws which shall still be in force at the end of sixty generations, and to tinge the faith and the minds of the people with her sober science and just morality as Christianity was affected by the adoptive policy of Rome and by the plastic philosophy of Greece. Of all these things England must sow the seeds and lay the foundations before she can hope to equal or surpass her great exemplars *

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* Up to the present time England has made no great and lasting impress on the Indians, except as the introducer of an improved and effective military system although she has also done

But England can do nothing until she has rendered her dominion secure, and hitherto all her thoughts have been given to the extension of her supremacy. Up to this time she has been a rising power, the welcome

much to exalt her character as a governing power, by her generally scrupulous adherence to formal engagements.

The Indian mind has not yet been suffused or saturated by the genius of the English, nor can the light of European knowledge be spread over the country, until both the Sanscrit and Arabic (Persian) languages are made the vehicles of instructing the *learned* These tongues should thus be assiduously cultivated, although not so much for what they contain as for what they may be made the means of conveying The hierarchies of "Gymnosophists" and "Ulema" will the more readily assent to mathematical or logical deductions, if couched in words identified in their eyes with scientific research, and they in time must of necessity make known the truths learned to the mass of the people The present system of endeavouring to diffuse knowledge by means of the rude and imperfect vernacular tongues can succeed but slowly, for it seems to be undertaken in a spirit of opposition to the influential classes, and it is not likely to succeed at all until expositions of the sciences, with ample proofs and illustrations, are rendered complete, instead of partial and elementary only, or indeed meagre and inaccurate in the extreme, as many of the authorized school-books are. If there were Sanscrit or Arabic counterparts to these much-required, elaborate treatises, the predilections of the learned Indians would be overcome with comparative ease.

The fact that the astronomy of Ptolemy, and the geometry of Euclid, are recognized in their Sanscrit dress, as text books of science even among the Brahmins, should not be lost upon the promoters of education in the present age The philosophy of facts and the truths of physical science had to be made known by Copernicus and Galileo, Bacon and Newton, through the medium of the Latin tongue, and the first teachers and upholders of Christianity preferred the admired and widely spoken

supplanter of Moghuls and Mahrattas and the ally which the remote weak sought against the neighboring strong But her greatness is at its height, it has come to her turn to be feared instead of courted The Princes of India can no longer acquire fame or territory by preying upon one another Under the exact sway of their new paramount, they must divest themselves of ambition and of all the violent passions of their nature, and they must try to remain Kings without exercising the most loved of the functions of rulers. The Indians indeed will themselves politely liken England and her dependent sovereigns to the benignant moon accompanied by hosts of rejoicing stars in her nightly progress rather than to the fierce sun

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Roman and Greek, both to the antique Hebrew and to the im perfect dialects of Gaul and Syria, Africa and Asia Minor In either case the language recommended the doctrine, and added to the conviction of Origen and Irenæus, Tertullian and Clement of Rome, as well as to the belief of the scholar of more modern times Similarly in India, the use of Sanscrit, and Arabic, and Persian, would give weight to the most obvious principles, and completeness to the most logical demonstrations.

That in Calcutta the study of the sciences is pursued with some success, through the joint medium of the English language and local dialects, and that in especial the tact and perseverance of the Professors of the Medical College have induced Indians of family or caste to dissect the human body do not militate against the views expressed above, but rather serve as exceptions to prove their truth In Calcutta Englishmen are numerous, and their wealth, intelligence, and political position render their influence overwhelming but this mental predominance decreases so rapidly that it is unfelt in fair sized towns within fifty miles of the capital and is but faintly revived in the populous cities of Benares and Delhi, Poonah and Hydrabad.

which rides the heavens in solitude scarcely visible amidst intolerable brightness, but men covet power as well as ease, and crave distinction as well as wealth; and thus it is with those who endeavor to jest with adversity England has immediately to make her attendant Princes feel; that while resistance is vain; they are themselves honored, and hold a substantive position in the economy of the imperial Government, instead of being merely tolerated as bad rulers or regarded with contempt and aversion as half-barbarous men Her rule has hitherto mainly tended to the benefit of the trading community, men of family name find no place in the society of their masters, and no employment in the service of the state, and while the peasants have been freed from occasional ruinous exaction, and from more rare personal torture, they are sometimes oppressed and impoverished by a well-meant but cumbrous and inefficent law,* and by an excessive and

* The police of India is notoriously corrupt and oppressive, and even the useful establishments for tracing Thugs and Dakoits, or banded assassins and confederate robbers, may before long become as great an evil in one way as the gangs of criminals there breaking up are in another. The British rule is most defective in the prevention and detection of crime, and while supremely prowerful in military means, the Government is comparatively valueless as the guardian of the private property of its citizens England has identified herself so little with the people of India, that she leans solely on hireling agency, and trusts the preservations of internal order to men who fear her, indeed, but who hate her at the same time, and can deceive her with ease and impunity. The people themselves, as well as the mass of paid servants, have yet to be enlisted in the cause of justice and order, and some middle class

partial taxation, which looks almost wholly to the land for the necessary revenue of a Government.* The

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landholders should have powers of committal, while others should form juries or punchayets within their "pergunnehs" and "zillahs," or hundreds and shires. Within such limits the zemindars of India are as much alive to public opinion as the landholders of other countries. (For some apposite remarks on the subject, see *Lieutenant Colonel Sleeman's Rambles and Recollections of an Indian Official* ii 313, &c.)

* The proportions of the land tax to the general revenues of British India are nearly as follows —

Bengal, 2/5 Bombay ¾ Madras, ¾ Agra, 4/5.

Average=3/5 of the whole.

In some European states the proportions are nearly as below —

England 1/24 France, ⅙ Spain 1/17 (perhaps some error) Belgium, 2/11 Prussia, 2/11 Naples, ¼ Austria, ⅓

In the United States of America the revenue is almost wholly derived from customs.

It is now idle to revert to the theory of the ancient laws of the Hindoos, or of the more recent institutes of the Mahometans, although much clearness of view has resulted from the learned researches or laborious inquiries of Briggs and Munro, of Sykes and Halhed and Galloway It is also idle to dispute whether the Indian farmer pays a "rent" or a "tax, in a teachnical sense, since, practically it is certain, 1 that the Government (or its assign, the jageerdar or grantee,) gets, in nearly all instances, almost the whole surplus produce of the land; and, 2 that the state, if the owner does not perform its duty by furnishing from its capital wells and other things, which correspond in difficulty of provision with barns and drains in England In India no one thinks of investing capital or of spending money on the improvement of the land, excepting directly a few patriarchal chiefs through love of their homes; and, indirectly the wealthy speculators in opium, sugar &c., through the love of gain. An ordinary village, "head man," or the still poorer "ryot," whether paying direct to Government or through a revenue farmer has

husbandman is sullen and indifferent,* the gentleman nurses his wrath in secrecy, Kings idly chafe and

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just so much of the produce left as will enable him to provide the necessary seed, his own inferior food, and the most simple requisites of tillage, and as he has thus no means, he cannot incur the expense or run the risk of introducing improvements

Hence it behoves England, if in doubt about Oriental "socage" and "freehold" tenures, to redistribute her taxation; to diminish her assessment on the soil, and to give her multitudes of subjects, who are practically "copyholders," at least a permanent interest in their land, as she has done so largely by "customary" leaseholders within her own proper dominion There should likewise be a limit to which such estates might be divided, and this could be advantageously done, by allowing the owner of a petty holding to dispose as he pleased, not of the land itself, but of what it might bring when sold.

For some just observations on the land tenures of India, see *Lieutenant-Colonel Sleeman's Rambles and Recollections of an Indian Official*, i 80, &c, and ii 346, &c, while, for a *fiscal* description of the transition system now in force in the north-western provinces, the present Lieutenant-Governor's *Directions for Settlement Officers*, and his *Remarks on the Revenue System*, may be profitably consulted.

* Lieutenant-Colonel Sleeman considers (*Rambles of an Indian Official*, ii 175) that neither have the English gained, nor did other rulers possess, the good-will of the peasantry and landholders of the country

In considering the position of the English, or of any ruling power, in India, it should always be borne in mind that no bodies of peasantry, excepting perhaps the Sikhs, and, in a lesser degree, the Rajpoots of the West, and no classes of men, excepting perhaps the Mahometans, and, in a lesser degree, the Brahmins, take any interest in the government of their country, or have collectively any wish to be dominant. The masses of the population, whether of towns or villages, are ready to submit to any master, native or foreign; and the multitudes of submissive

intrigue and some are ready to hope for everything (imprudently of course) from a change of master The merchant alone sits partly happy in the reflection, that if he is not honored with titles and office, the path to wealth has been made smooth, and its enjoyment rendered secure

Princes and nobles and yeomen can all be kept in obedience for generations by overwhelming means, and by a more complete military system than at present obtains. Numerous forts and citadels * the occasional assemblage of armies, and the formation of regiments separately composed of different tribes and races † will

subjects possessed by England, contribute nothing to her strength except as tax payers, and, during an insurrection or after a conquest, would at once give the "Government share of the produce" to the wielder of power for the time being and would thereby consider themselves freed from all obligations and liabilities. England must be just and generous towards these tame myriads but the men whom she has pre-eminently to keep employed, honored, and overawed, are the turbulent military classes, who are ever ready to rebel and ever desirous of acquiring power

* The fewness of places of strength, and indeed of places of ordinary security for magazines of arms and ammunition, is a radical defect in the military system of the English in India. The want of extensive granaries is also much felt, both as a measure of the most ordinary prudence in case of insurrection or any military operation and as some check upon prices on the common recurrence of droughts in a country in which capitalists do not yet go hand in hand with the Government, and are but little amenable to public opinion beyond their order. Such was, and is, the custom of the native Princes, and no practice exists without a reason.

† The English have not succeeded in making their well ordered army a separate caste or section of the community except very partially in the Madras presidency, where a Sepoy's

long serve to ensure supremacy and to crush the efforts of individuals; but England has carefully to watch the progress of that change in social relations and religious feelings of which Sikhism is the most marked exponent. Among all ranks of men there is a spirit at work which rejects as vain the ancient forms and ideas whether of Brahminism or Mahometanism, and which clings for present solace and future happiness to new intercessors and to another manifestation of divine power and mercy. This laboring spirit has developed itself most strongly on the confines of the two antagonist creeds;

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home is his regiment It is moreover but too apparent that the active military spirit of the Sepoys, when on service in India, is not now what it was when the system of the "Company" was new and the fortune of the strangers beginning, This is partly due to the general pacification of the country, partly to the practice of largely enlisting tame spirited men of inferior caste bebause they are well behaved, or pliant intriguing Brahmins because they can write and are intelligent; and partly because the system of central or rather single management has been carried too far The Indian is eminently a partizan, and his predilection for his immediate supperior should be encouraged, the more especially as there can be no doubt of the loyalty as of the English commandant The clannish, or feudal, or mercenary, attachments do not in India yield to rational conviction or political principle, and colonels of battalions should have very large powers Regiments separately composed of men of one or other of the military classes might sometimes give trouble within themselves, and sometimes come into collision with other giments, but a high warlike feeling would be engendered, and unless England chooses to identify herself with some of the inferior races, and to evoke a new spirit by becoming a religious reformer, she must keep the empire she has won by working upon the feelings she finds prevalent in the country.

but the feeling pervades the Indian world and the extension of Sikh arms would speedily lead to the recognition of Nanuk and Govind as the long looked for Comforters. The Sikhs have now been struck by the petrific hand of material power and the ascendancy of a third race has everywhere infused new ideas, and modified the aspirations of the people. The confusion has thus been increased for a time but the pregnant fermentation of mind must eventually body itself forth in new shapes, and a prophet of name unknown may arise to diffuse a system which shall consign the Veds and Koran to the oblivion of the Zendavest and the Sibylline Leaves and which may not perhaps absorb one ray of light from the wisdom and morality of that faith which adorns the civilization of the Christian rulers of the country But England must hope that she is not to exercise an unfruitful sway and she will add fresh lustre to her renown, and derive an additional claim to the gratitude of posterity if she can seize upon the essential principles of that element which disturbs her multitudes of Indian subjects and imbue the mental agitation with new qualities of beneficent fertility, so as to give to it an impulse and a direction which shall surely lead to the prevalence of a religion of truth and to the adoption of a Government of freedom and progress.

APPENDICES.

APPENDICES.



APPENDIX I.

THE "ADEE GRUNT'H," OR, FIRST BOOK; OR THE BOOK OF NANUK, THE FIRST GOOROO OR TEACHER OF THE SIKHS.

NOTE — The First Grunt'h is nowhere narrative or historical. It throws no light, by direct exposition, upon the political state of India during the sixteenth and seventeenth centuries, although it contains many allusions illustrative of the condition of society, and of the religious feelings of the times. Its teaching is to the general purport that God is to be worshipped in spirit and in truth, with little reference to particular forms, and that salvation is unattianable without grace, faith, and good works

The "Adee Grunt'h" comprises, *first*, the writings attributed to Nanuk, and the succeeding teachers of the Sikh faith up to the ninth Gooroo, Tegh Buhadur, omitting the sixth, seventh, and eighth, but with perhaps some additions and emendations by Govind , *secondly*, the compositions of certain "Bhugguts", or saints, mostly sectarian Hindoos, and who are usually given as sixteen

in number and *thirdly* the verses of certain "Bhats" or rhapsodists followers of Nanuk and of some of his successors. The numbers, and even the names of the "Bhugguts" or saints are not always the same in copies of the Grunt'h and thus modern compilers or copyists have assumed to themselves the power of rejecting or sanctioning particular writings. To the sixteen Bhugguts are usually added two "Doms," or chanters who recited before Arjoon and who caught some of his spirit, and a "Rubabee or player upon a stringed instrument, who became similarly inspired

The Grunt'h sometimes includes an appendix, containing works the authenticity of which is doubtful, or the propriety of admitting which is disputed on other grounds

The Grunt'h was originally compiled by Arjoon the fifth Gooroo, but it subsequently received a few additions at the hands of his successors.

The Grunt'h is written wholly in verse but the forms of versification are numerous. The language used is rather the Hindee of Upper India generally, than the particular dialect of the Punjab, but some portions, especially of the last section are composed in Sanscrit. The written character is nevertheless throughout the Punjabee, one of the several varieties of alphabets now current in India, and which from its use by the Sikh Gooroos is sometimes called "Goormookhee," a term likewise applied to the dialect of the Punjab. The language of the writings of Nanuk is thought by modern Sikhs to abound with provincialisms of the country S. W of Lahore, and the dialect of Arjoon is held to be the most pure.

The Grunt'h usually forms a quarto volume of about 1232 pages, each page containing 24 lines, and

each line containing about 35 letters. The extra books increase the pages to 1240 only.

Contents of the Adee Grunt'h.

1st. The "*Jupjee*" or simply the "*Jup*", called also *Gooroo Muntr*, or the special prayer of initiation of the Gooroo. It occupies about seven pages, and consists of 40 sloks, called *Powree*, of irregular lengths, some of two, and some of several lines It means, literally, the remembrancer or admonisher, from *Jup*, to remember. It was written by Nanuk, and is believed to have been appointed by him to be repeated each morning, as every pious Sikh now does. The mode of composition implies the presence of a questioner and an answerer, and the Sikhs believe the questioner to have been the disciple Unggud.

2d "*Sodur Reih Râs*,"—the evening prayer of the Sikhs. It occupies about 3½ pages, and it was composed by Nanuk, but has additions by Ram Das and Arjoon, and some, it is said, by Gooroo Govind. The additions attributed to Govind are, however, more frequently given when the Reih Ras forms a separate pamphlet or book. *Sodur*, a particular kind of verse, *Reih*, admonisher, *Ras*, the expression used for the play or recitative of Krishna. It is sometimes corruptly called the "Rowh Ras," from *Rowh*, the Punjabee for a road.

3d "*Keerut Sôhila*,"—a prayer repeated before going to rest. It occupies a page, and a line or two more. It was composed by Nanuk, but has additions by Ram Das and Arjoon, and one verse is attributed to Govind. *Keerut*, from Sanscrit *Keertee*, to praise, to celebrate, and *Sohila*, a marriage song, a song of rejoicing.

4th. The next portion of the Grunt'h is divided into thirty-one sections known by their distinguishing forms of verse, as follows:—

1 Sirree Rag	12. Todee.	22. Tokharee.
2 Majh.	13 Beiraree.	23. Kedara
3 Gowree	14. Teilung	24. Bheiron
4. Assa.	15 Sodhee.	25 Bussunt
5 Goojree.	16. Bilawul.	26. Sarung
6. Deo Gundharee.	17 Gowd	27 Mulhar
7 Bibagra	18. Ram Kullee.	28 Kanra.
8 Wud Huns.	19. Nut Nurayen	29. Kulleean.
9. Sorut h (or Sort).	20. Malee Gowra	30. Purbhatee.
10 Dhunasree	21 Maroo	31 Jei Jeiwuntee.
11 Jeit Sirnee.		

The whole occupies about 1154 pages or by far the greater portion of the entire Grunt h Each subdivision is the composition of one or more Gooroo or of one or more Bhugguts or holy men, or of a Gooroo with or without the aid of a Bhuggut.

The contributors among the Gooroos were as follows –

1 Nanuk	5 Arjoon
2. Unggud	6. Tegh Buhadur, with, perhaps, emendations by Govind
3 Ummer Das.	
4. Ram Das.	

The Bhugguts or saints, and others who contributed agreeably to the ordinary copies of the Grunt'h are enumerated below

1 Kubeer (the well-known reformer).
2. Treelotchun, a Brahmin.
3 Behnee.
4 Rao Das, a Chumar, or leather dresser.
5 Nam Deo, a Cheepa, or cloth printer.
6 Dhunna, a Jat
7 Shekh Furreed, a Mahometan peer or saint.
8 Jeideo, a Brahmin.
9. Bheekun
10. Sen, a barber.
11 Peepa (a Joghee ?).
12. Sudhna, a butcher.
13 Ramanund Byraghee (a well-known reformer)
14 Purmanund
15 Soor Das (a blind man).
16. Meeran Baee, a Bhuggutnee, or holy woman.
17 Bulwund, and
18. Sutta, "Doms" or chanters who recited before Arjoon.
19. Soonder Das, Rubabee, or player upon a stringed instrument He is not properly one of the Bhugguts.

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5th. "*The Bhog*" In Sanscrit this word means to enjoy any thing, but it is commonly used to denote the conclusion of any sacred writing, both by Hindoos and Sikhs. The Bhog occupies about 66 pages, and besides the writings of Nanuk and Arjoon, of Kubeer, Shekh Fureed, and other reformers, it contains the compositions of nine Bhats or rhapsodists who attached themselves to Ummer Das, Ram Das, and Arjoon

The Bhog commences with four sloks in Sanscrit by Nanuk, which are followed by 67 Sanscrit sloks in

one metre by Arjoon and then by 24 in another metre by the same Gooroo There are also 23 sloks in Punjabee or Hindee by Arjoon which contain praises of Amritsir These are soon followed by 243 sloks by Kubeers and 130 by Shekh Fureed and others containing some sayings of Arjoon. Afterwards the writings of Kull and the other Bhats follow intermixed with portions by Arjoon and so on to the end

The nine Bhats who contributed to the Bhog are named as follows —

1 Bhikha a follower of Ummer Das.
2. Kull a follower of Ram Das.
3 Kull Subar
4. Jalup a follower of Arjoon.
5 Sull, a follower of Arjoon
6. Null.
7 Muthra.
8. Bull
9. Keerit.

The names are evidently fanciful and perhaps fictitious. In the book called the "Gooroo Bilas eight Bhats only are enumerated and all the names except Bull are different from those in the Grunt'h.

Supplemen of the Grunt'h.

6th. "*Bhog ka Banee*" or Epilogue of the Conclusion. It comprises about sev n pages and contains *first* some preliminary sloks called slok Mehl Peihla, or Hymn of the first Woman or S ve *secondly* Nanuk s Admonition to Mulhar Raja *thi d* the Ruttan Mala of Nanuk, i e the Rosary nels or sting of

(religious) worthies, which simply shows, however, what should be the true characteristics or qualities of religious devotees, and, *fourthly*, the "Hukeekut" or, Circumstances of Sivnab, Raja of Ceylon, with reference to a "Potee" or sacred writing known as "Pran Singhlee" This last is said to have been composed by one Bhaee Bhunnoo in the time of Govind

The Kuttun Mala is said to have been originally written in Toorkee, or to have been abstracted from a Toorkee original.

APPENDIX II.

THE "DUSWEN PADSHAH KA GRUNT'H," OR, BOOK OF THE TENTH KING, OR SOVEREIGN PONTIFF, THAT IS, OF GOOROO GOVIND SINGH.

NOTE — Like the "Adee Grunt'h," the book of Govind is metrical throughout, but the versification frequently varies.

It is written in the Hindee dialect, and in the Punjabee character, excepting the concluding portion, the language of which is Persian, while the alphabet continues the Goormookhee The Hindee of Govind is almost such as is spoken in the Gangetic provinces, and has few peculiarities of the Punjabee dialect.

One chapter of the Book of the Tenth King may be

considered to be narrative and historical, *viz* the "Vichitr Natuk," written by Govind himself, but the Persian "Hikayuts' or stories also partake of that character from the circumstances attending their com position and the nature of some allusions made in them. The other portions of this Grunt h are more mythological than the first book and it also partakes more of a worldly character throughout, although it contains many noble allusions to the unity of the Godhead and to the greatness and goodness of the Ruler of the Universe.

Five chapters or portions only and the commencement of a sixth, are attributed to Govind himself the remainder, *i e.* by far the larger portion is said to have been composed by four scribes in the service of the Gooroo partly perhaps agreeably to his dictation. The names of Sham and Ram occur as two of the writers, but, in truth, little is known of the authorship of the portion in question.

The Duswen Padshah ka Grunt'h" forms a quarto volume of 1,066 pages, each page consisting of 23 lines and each line of from 38 to 41 letters.

Contents of the Book of the Tenth King

Ist. "*The Jápjee*" or simply the "Jap " the supplement or complement of the "Jupjee" of Nanuk,—a prayer to be read or repeated in the morning as it continues to be by pious Sikhs. It comprises 198 distichs and occupies about seven pages, the termination of a verse, and the end of a line not being the same. The Jupjee was composed by Gooroo Govind

2d. "*Akàl Stoot*," or, the Praises of the Almighty,—a hymn commonly read in the morning. It occupies 23 pages, and the initiatory verse alone is the composition of Govind.

3d. "*The Vichitr Natuk*," *i. e.* the Wondrous Tale. This was written by Govind himself, and it gives, *first*, the mythological history of his family or race, *secondly* and account of his mission of reformation, and, *thirdly*, a description of his warfare with the Himalayan chiefs and the Imperial forces. It is divided into fourteen sections; but the first is devoted to the praises of the Almighty, and the last is of a similar tenor, with an addition to the effect that he would hereafter relate his visions of the past and his experience of the present world. The Vichitr Natuk occupies about 24 pages of the Grunt'h.

4th. "*Chundee Churitr*," or, the Wonders of Chundee or the Goddess. There are two portions called Chundee Churitr, of which this is considered the greater. It relates the destruction of eight *Titans* or Deityas by Chundee the Goddess. It occupies about 20 pages, and it is understood to be the translation of a Sanscrit legend, executed, some are willing to believe, by Govind himself.

The names of the Deityas destroyed are as follows:—

1. Mudhoo Keitub.
2. Meih Khasoor.
3. Dhoomur Lotchun.
4. and 5. Chund and Moond.
6. Rukt Beej.
7. Nishoonbh.
8. Shoonbh.

5th. "*Chundee Churitr*" the lesser. The same

legends as the greater Chundee, narrated in a different metre. It occupies about 14 pages.

6th '*Chundee kee Var*" A supplement to the legends of Chundee. It occupies about six pages.

7th. "*Gheaan Prbodh* or the Excellence of Wisdom. Praises of the Almighty with allusions to ancient Kings taken mostly from the Muhabharut. It occupies about 21 pages.

8th. *Chowpeean Chowbees Owtaran Keean*," or Quatrains relating to the Twenty four Manifestations (Owtars or Avatars). These Chowpeys" occupy about 348 pages and they are considered to be the work of one by name Sham

The names of the incarnations are as follows —

1 The fish or Much h.
2 The tortoise, or Kuch'h.
3. The lion or Nurr
4. Nurayen
5 Mohunee.
6 The boar or Varah.
7 The man-lion or Nursingh.
8 The dwarf or Bawun.
9. Purs Ram
10. Brohma.
11 Roodr
12 Jalundhur
13 Vishnoo.
14. (No name specified but understood to be a manifestation of Vishnoo)
15 Arhunt Deo (considered to be the founder of the sect of Seraoghees of the Jein persuasion or indeed, the great Jein prophet himself
16. Mun Raja.
17 Dhununtur (the doctor, or physician).
18 The sun or Sooruj.

19. The moon, or Chundermah.
20. Rama.
21. Krishna.
22. Nur (meaning Arjoon).
23 Bodha.
24 Kulkee, to appear at the end of the Kulyoog, or when the sins of men are at their height.

9th. (No name entered, but known as) "*Mehdee Meer.*" A supplement to the Twenty-four Incarnation. Mehdee, it is said, will appear when the mission of Kulkee is fulfilled. The name and the idea are borrowed from the Sheea Mahometans. It occupies somewhat less than a page.

10th (No name entered, but known as) "*the Owtars of Bruhma.*" An account of seven incarnations of Bruhma, followed by some account of eight Rajas of bygone times. It occupies about 18 pages.

The names of the incarnations are as follows —

1. Valmeek.
2 Kushup.
3 Shookur.
4. Batchess.
5 Veias (Vyasa).
6. Khusht Rikhee (or the Six Sages).
7. Kul Das.

The Kings are enumerated below.—

1. Mun.
2 Pirth.
3 Suggur.
4 Ben
5 Mandhata.
6 Dhuleep.
7. Rugh.
8. Uj

11th. (No name entered, but known as) "*the Owtars*

of Roodr or Siva." It comprises 56 pages, and two incarnations only are mentioned namely, Dutt and Parisnath

12th. "*Shustr Nam Mála*, or, the Name string of Weapons. The names of the various weapons are recapitulated the weapons are praised and Govind terms them collectively his Gooroo or guide. The composition nevertheless is not attributed to Govind. It occupies about 68 pages.

13th "*Sree Mookh Vak Suwea Butees*" or the Voice of the Gooroo [Govind] himself, in thirty two verses. These verses were composed by Govind as declared, and they are condemnatory of the Veds, the Poorans, and the Koran. They occupy about 3½ pages.

14th. "*Huzareh Shubd*," or, the Thousand Verses of the metre called Shubd. There are, however but ten verses only in most Grunt'h, occupying about two pages. Huzar is not understood in its literal sense of a thousand but as implying invaluable or excellent. They are laudatory of the Creator and creation, and deprecate the adoration of saints and limitary divinities. They were written by Gooroo Govind

15th. "*Istree Chuntr*" or Tales of Women. There are 404 stories illustrative of the character and disposition of women. A stepmother became enamored of her stepson the heir of a monarchy who however would not gratify her desires whereupon she represented to her husband that his first born had made attempts upon her honor The Raja ordered his son to be put to death but his Ministers interfered and procured a respite. They then enlarged in a series of stories upon the nature of women, and at length the Raja became

sensible of the guilt of his wife's mind, and of his own rashness. These stories occupy 446 pages, or nearly half of the Grunt'h. The name of Sham also occurs as the writer of one or more of them.

16th. *The "Hikayuts,"* or Tales. These comprise twelve stories in 866 sloks of two lines each. They are written in the Persian language and Goormookhee charactar, and they were composed by Govind himself as admonitory of Aurungzeb, and were sent to the emperor by the hands of Deia Singh and four other Sikhs. The tales were accompanied by a letter written in a pointed manner, which, however, does not form a portion of the Grunt'h.

These tales occupy about 30 pages, and conclude the Grunt'h of Gooroo Govind.

APPENDIX III

SOME PRINCIPLES OF BELIEF AND PRACTICE AS EXEMPLIFIED IN THE OPINIONS OF THE SIKH GOOROOS OR TEACHERS.

With an *Addendum*, showing the modes in which the missions of Nanuk and Govind are represented or regarded by the Sikhs

I *God—the Godhead.*

THE True Name is God without fear, without enmity, the Being without Death the Giver of Salvation the Gooroo and Grace.

Remember the primal Truth Truth which was before the world began

Truth which is and Truth, O Nanuk! which will remain.

By reflection it cannot be understood if times innumerable it be considered

By meditation it cannot be attained how much soever the attention be fixed.

A hundred wisdoms, even a hundred thousand not one accompanies the dead

How can Truth be told how can falsehood be unravelled?

O Nanuk! by following the will of God, as by Him ordained.

NANUK, *Adee Grunth* Jupjee, (commencement of)

One, self-existent, Himself the Creator.
O Nanuk! one continueth, another never was and never will be. NANUK, *Adee Grunt'h*, Gowree Rag

Thou art in each thing, and in all places
O God! thou art the one Existent Being.
RAM DAS, *Adee Grunt'h*, Assa Rag.
My mind dwells upone One,
He who gave the Soul and the body.
ARJOON, *Adee Grunt'h*, Sree Rag

Time is the only God, the First and the Last, the endless Being, the Creator, the Destroyer, He who can make and unmake.
God who created Angels and Demons, who created the East and the West, the North and the South, How can He be expressed by words?
GOVIND, *Huzareh Shubd*

God is one image (or Being), how can He be conceived in another form? GOVIND *Vichitr Natuk*

2 *Incarnations, Saints, and Prophets, the Hindoo Owtars (Avatars), Mahomet, and Siddhs, and Peers.*

Numerous Mahomets have there been, and multitudes of Bruhmas, Vishnoos, and Sivas,
Thousand of Peers and Prophets, and tens of thousands of Saints and Holy men:

But the Chief of Lords is the One Lord, the true Name
of God
O Nanuk! of God His qualities without end beyond
reckoning who can understand?
NANUK, *Ruttun Mala* (Extra to the Grunt h).

Many Brahmas wearied themselves with the study of
the Veds but found not the value of an oil
seed
Holy men and Saints sought about anxiously but they
were deceived by Maya.
There have been and there have passed away ten re
gent Owtars and the wondrous Muhadeo.
Even they wearied with the application of ashes could
not find Thee ARJOON *Adee Grunt'h*, Sodhee.
Soors and Siddhs and the Deotas of Siva Shekhs and
Peers and men of might,
Have come and have gone, and others are likewise pass-
ing by ARJOON *Adee Grunt'h*, Sree Rag

Krishna indeed slew demons he performed wonders and he declared himself to be Bruhm, yet he should not be regarded as the Lord He himself died How can he save those who put faith in him? How can one sunk in the ocean sustain another above the waves? God alone is all powerful He can create and He can destrov
GOVIND *Hazareh Shubd*

God without friends without enemies
Who heeds not praise, nor is moved by curses
How could He become manifest as Krishna?

How could He, without parents, without offspring, become born to a "Devkee?" GOVIND, *Huzareh Shubd.*

Ram and Ruheem * (names repeated) cannot give salvation.

Bruhma, Vishnoo and Siva, the Sun and the Moon, all are in the power of death. GOVIND, *Huzareh Shubd.*

3 *The Sikh Gooroos not to be worshipped.*

He who speaks of me as the Lord,
Him will I sink into the pit of Hell!
Consider me as the slave of God
Of that have no doubt in thy mind.
I am but the slave of the Lord,
Come to behold the wonders of Creation.
GOVIND, *Vichitr Natuk.*

4. *Images, and the Worship of Saints.*

Worship not another (than God), bow not to the Dead.
NANUK, *Adee Grunt'h,* Sort Raginee.

To worship an image, to make pilgrimages to a shrine, to remain in a desert and yet to have the mind

* The merciful, i e, the God of the Mahometans.

impure, is all in vain and thus thou canst not be accepted. To be saved thou must worship Truth (God).

NANUK, *Adee Grunt'h* Bhog, in which however he professes to quote a learned Brahmin.

Man who is a beast of the field, cannot comprehend Him whose power is of the Past, the Present, and the Future.

God is worshipped that by worship salvation may be attained.

Fall at the feet of God, in senseless stone God is not.

GOVIND *Vichitr Natuk*

5 *Miracles*

To possess the power of a Siddhee, (or changer of shapes)
To be as a Ridhee, (or giver away of never-ending stores)
And yet to be ignorant of God, I do not desire.
All such things are vain

NANUK, *Adee Grunt'h*, Sree Rag

Dwell thou in flames uninjured
Remain unharmed amid ice eternal
Make blocks of stone thy daily food,
Spurn the Earth before thee with thy foot,
Weigh the Heavens in a balance
And then ask of me to perform miracles

NANUK, to a challenger about miracles.
Adee Grunt'h, Maj Var

6. *Transmigration.*

Life is like the wheel circling on its pivot,
O Nanuk! of going and coming there is no end
NANUK, *Adee Grunt'h*, Assa. (Numerous other passages of a like kind might be quoted from Nanuk and his successors.)

He who knows not the One God
Will be born again times innumerable.
GOVIND, *Mehdee Meer.*

7. *Faith.*

Eat and clothe thyself, and thou may'st be happy,
But without fear and faith there is no salvation.
NANUK, *Adee Grunt'h*, Sohila Maroo Rag.

8. *Grace.*

O Nanuk! he, on whom God looks, finds the lord.
NANUK, *Adee Grunt'h*, Assa Rag.
O Nanuk! he, on whom God looks, will fix his mind on the Lord. UMMER DAS, *Adee Grunt'h*, Bilawul.

9. *Predestination.*

According to the fate of each, dependent on his actions, are his coming and going determined.
NANUK, *Adee Grunt'h*, Assa.

How can Truth be told? how can falsehood be unravelled? O Nanuk! by following the will of God, as by Him ordained. NANUK, *Adee Grunt'h*, Jupjee.

10. *The Veds, the Poorans, and the Koran*

Potees Simruts, Veds and Poorans
Are all as nothing if unleavened by God
NANUK *Adee Grunt'h* Gowree Rag

Give ear to Shasters and Veds and Korans
And thou may'st reach "Swurg and Nurk
(*i. e.* to the necessity of coming back again)
Without God salvation is unattainable
NANUK, *Ruttan Mala* (an Extra book of the Adee Grunt'h.)

Since he fell at the feet of God no one has appeared great in his eyes.
Ram and Ruheem the Poorans and the Koran have many votaries but neither does he regard
Simruts Shasters and Veds, differ in many things not one does he heed.
O God! under Thy favour has all been done, nought is of myself GOVIND *Rcih Ras*

11 *Asceticism*

A householder* who does no evil
Who is ever intent upon good

* *i. e.* in English idiom, one of the laity one who fulfils the ordinary duties of life.

Who continually exerciseth charity,
Such a householder is pure as the Ganges.
NANUK, *Adee Grunt'h*, Ramkullee Raginee.

Householders and Hermits are equal, whoever calls on the name of the Lord.
NANUK, *Adee Grunt'h*, Assa Raginee

Be "Oodas" (*i. e.* disinterested) in thy mind in the midst of householdership.
UMMER DAS, *Adee Grunt'h*, Sree Rag.

12. *Caste.*

Think not of race, abase thyself, and attain to salvation.
NANUK, *Adee Grunt'h*, Sarung Rag.

God will not ask man of his birth,
He will ask him what has he done.
NANUK, *Adee Grunt'h*, Purbhatee Raginee

Of the impure among the noblest
Hesd not the injuncetion,
Of one pure among the most despised
Nanuk will become the footstool.
NANUK, *Adee Grunt'h*, Mulhar Rag.

All say that there are four races,
But all are of the seed of Bruhm.

The world is but clay,
And of similar clay many pots are made.
Nanuk says man will be judged by his actions
And that without finding God there will be no salvation.
The body of man is composed of the five elements
Who can say that one is high and another low?
UMMER DAS *Adee Grunt'h* Bheiruv

I will make the four races of one color,
I will cause them to remember the words "Wah Gooroo"
GOVIND the *Rehet Nameh* which, however, is not included in the Grunt'h.

13 *Food*

O Nanuk! the right of strangers is the one the Ox, and the other the Swine.
Gooroos and Peers will bear witness to their disciples when they eat naught which hath enjoyed life.
NANUK, *Adee Grunt'h* Maj

An animal slain without cause cannot be proper food
O Nanuk! from evil doth evil ever come.
NANUK, *Adee Grunt'h*, Maj

14. *Brahmins, Saints, &c.*

That Brahmin is a son of Brum
Whose rules of action are devotion, prayer, and purity,
Whose principles of faith are humility and contentment.
Such a Brahmin may break prescribed rules and yet find salvation.
NANUK, *Adee Grunt'h*, Bhog.

The cotton * should be mercy, the thread contentedness, and the seven knots virtue.
If there is such a "Juneeoo" of the heart, wear it;
It will neither break, nor burn, nor decay, nor become impure.
O Nanuk! he who wears such a thread is to be numbered with the holy.

NANUK, *Adee Grunt'h,* Assa.

Devotion is not in the Kinta (or ragged garment), nor in the Dunda (or staff), nor in Bhusm (or ashes), nor in the shaven head (moondee), nor in the sounding of horns (Singheh weieh).

NANUK, *Adee Grunt'h,* Soohee.

In this age few Brahmins are of Bruhm (*i. e.* are pure and holy). UMMER DAS, *Adee Grunt'h,* Bilawul.

The Soonyassee should consider his home the jungle.
His heart should not yarn after material forms.
Gheian (or Truth) should be his Gooroo.

And he should neither be held to be "Sut-joonee," nor "Ruj-joonee," nor "Tumuh-joonee" (that is, should neither seem good for his own profit, only, nor good or bad as seemed expedient at the time, nor bad that he might thereby gain his ends). GOVIND, *Huzareh Shubd.*

* Viz. the cotton of the Brahminical thread, or juneeoo.

15 *Infanticide.*

—— With the slayers of daughters
Whoever has intercourse, him do I curse.

And again —

Whosoever takes food from the slayers of daughters
Shall die unabsolved
GOVIND *Rehet Nameh.* (Extra to the Grunt h.)

16. *Suttee.*

They are not Suttees who perish in the flames.
O Nanuk! Suttees are those who die of a broken heart
And again —
The loving wife perishes with the body of her husband
But were her thoughts bent upon God her sorrows would be alleviated
UMMER DAS *Adee Grunt'h,* Soohee.

ADDENDUM.

Bhaee Goordas Bhulleh s mode of representing the Mission of Nanuk

There were four races and four creeds* in the world among Hindoos and Mahometans

* The four *races* of Syeds, Shekhs, Moghuls, and Puthans, are

Selfishness, jealousy, and pride drew all of them strongly ·
The Hindoos dwelt on Benares and the Ganges, the Mahometans on the Kaaba ;
The Mahometans held by circumcision, the Hindoos by strings and frontal marks.
They each called on Ram and Ruheem, one name, and yet both forgot the road
Forgetting the Veds and the Koran, they were inveigled in the snares of the world.
Truth remained on one side, while Moollas and Brahmins disputed,
And Salvation was not attained.

*   *   *   *   *

*   *   *   *   *

God heard the complaint (of virtue or truth), and Nanuk was sent into the world
He established the custom that the disciple should wash the feet of his Gooroo, and drink the water ,
Par Bruhm and Poorun Bruhm, in this Kulyoog, he showed were one,
The four Feet (of the animal sustaining the world) were made of Faith ; the four castes were made one ,
The high and the low became equal , the salutation of the feet (among disciples) he established in the world *

---

here termed as of four creeds, and likened to the four castes or races of the Hindoos It is, indeed, a common saying that such a thing is " huram-i-char Muzhub," or forbidden among the four faiths or sects of Mahometans

* The Akalees still follow this custom.

Contrary to the nature of man, the feet were exalted above the head

In the Kulyoog he gave salvation using the only true Name he taught men to worship the Lord;

To give salvataion in the Kulyoog Gooroo Nanuk came.

Note.—The above extracts, and several others from the book of Bhaee Goordas may be seen in Malcolm's "Sketch of the Sikhs," p. 152, &c.; rendered, however, in a less literal manner than has here been attempted

The book contains forty chapters written in different kinds of verse and it is the repositary of many stories about Nanuk which the Sikhs delight to repeat. One of these is as follows:—

Nanuk again went to Mecca blue clothing he wore, like Krishna

A staff in his hand, a book by his side, the pot, the cup, and the mat, he also took

He sat where the Pilgrims completed the final act of their pilgrimage.

And when he slept at night he lay with his feet towards the front.

Jeewun struck him with his foot, saying, "Ho? what infidel sleeps here,

With his feet towards the Lord like an evil doer?"

—Seizing him by the leg he drew him aside, then Mecca also turned and a miracle was declared

All were astonished, &c., &c.

Gooroo Govind's mode of representing his Mission. (From the Vichitr Natuk, with an extract from the Twenty-four Incarnations, regarding the last Avatar and the succeeding Mehdee Meer.)

Note.—The first four chapters are occupied with a mythological account of the Sodheo and Behdee sub-divisions of the Kshutree race, the rulers of the Punjab at Lahore and Kussoor, and the descendants of Low and Koosoo, the sons of Ram, who traced his descent through Dusruth, Rugoo, Sooruj, and others, to Kalsen, a primeval monarch. So far as regards the present object, the contents may be summed up in the promise or prophecy, that in the Kulyoog Nanuk would bestow blessings on the Sodhees, and would, on his fourth mortal appearance, become one of that tribe.*

Chapter V (abstract.)—The Brahmins began to follow the ways of Soodras, and Kshutrees of Veiyas, and, similarly, the Soodras did as Brahmins, and the Veisyas as Kshutrees In the fulness of time Nanuk came and established his own sect in the world. He died, but he was born again as Unggud, and a third time as Ummer Das, and at last he appeared as Ram Das, as had been declared, and the Goorooship became inherent in the Sodhees. Nanuk thus put no other habiliments, as one lamp is lighted at another Apparently there were four Gooroos, but, in truth, in each body there was the soul of Gooroo Nanuk. When Ram Das departed, his son Arjoon became Gooroo, who was followed successively

* Compare the translations given in Malcolm's "Sketch," p. 174, &c.

by Hur Govind, Hur Raee, Hur Kishen, and Tegh Buhadur who gave his life for his faith in Delhi having been put to death by the Mahometans.

Chapter VI (abstract).—In the Bheem Khoond, near the Seven Shuringhee (or Peaks), where the Pandoos exercised sovereignty, (the unembodied soul of) Gooroo Govind Singh implored the Almighty, and became absorbed in the Divine essence (or obtained salvation without the necessity of again appearing on earth). Likewise the parents of the Gooroo prayed to the Lord continually God looked on them with favour, and (the soul of) Govind was sent for from the Seven Peaks to become one of mankind.

Then my wish was not to reappear,
For my thoughts were bent upon the feet of the Almighty;
But God made known to me his desires.

The Lord said, When mankind was created the Deityas were sent for the punishment of the wicked, but the Deityas being strong forgot me their God Then the Deotas were sent, but they caused themselves to be worshipped by men as Siva, and Brumha, and Vishnoo. The Sidhs were afterwards born, but they, following different ways, established many sects. Afterwards Gorukhnath appeared in the world and he making many kings his disciples established the sect of Joghees. Ramanund then came into the world, and he established the sect of Byragheeg after his own fashion Muhadeen (Mahomet) too was born and became lord of of Arabia. He established a sect, and required his followers to repeat his name. Thus, they who were sent to guide

mankind, perversely adopted modes of their own, and misled the world None taught the right way to the ignorant, wherefore thou, O Govind! hast been called, that thou mayst propagate the worship of the One True God, and guide those who have lost the road." Hence I, Govind, have come into the world, and have established a sect, and have laid down its customs, but whosoever regards me as the Lord shall be dashed into the pit of hell, for I am but as other men, a beholder of the wonders of creation.

[Govind goes on to declare that he regarded the religions of the Hindoos and Mahometans as naught; that Joghees, and the readers of Korans and Poorans, were but deceivers, that no faith was to be put in the worship of images and stones All religions, he says, had become corrupt, the Soonyasee and Byraghee equally showed the wrong way, and the modes of worship of Brahmins and Kshutrees and others were idle and vain. "All shall pass into hell, for God is not in books and scriptures, but in humility and truthfulness"

The subsequent chapters, to the 13th inclusive, relate the wars in which Govind was engaged with the Rajas of the hills and the imperial forces.]

Chapter XIV. (abstract).—O God! thou who hast always preserved thy worshippers from evil, and hast inflicted punishment on the wicked; who hast regarded me as thy devoted slave and hast served me with thine own hand, now all that I have beheld, and all thy glories which I have witnessed, will I faithfully relate. What I beheld in the former world, by the blessing of

God will I make known. In all my undertakings the goodness of the Lord hath been showered upon me. Loh (iron) has been my preserver Through the goodness of God have I been strong and all that I have seen during the various ages will I put in a book, every thing shall be fully made known.

Extract from the Twenty four Avatars

Kulkee (conclusion of).—Kulkee at last became strong and proud, and the Lord was displeased, and created, another Being Mehdee Meer was created great and powerful who destroyed Kulkee, and became master of the world All is in the hands of God. In this manner passed away the twenty four manifestations.

Mehdee Meer —In such manner was Kulkee destroyed but God manifests himself at all times and at the end of the Kulyoog all will be his own * When Mehdee Meer had vanquished the world he became raised up in his mind He assumed to himself the crown of greatness and power and all bowed to him. He regarded himself as supreme. He thought not of God but considered himself to be in all things and to exist everywhere. Then the Almighty seized the fool God is One. He is without a second. He is everywhere, in the water and under the earth He who knows not the One God will be born again times

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* Nij jot, jot Suman.

innumerable. In the end God took away the power of Mehdee Meer, and destroyed him utterly.

A creeping worm did the Lord create,
By the ear of Mehdee it went and stayed:
The worm entered by his ear,
And he was wholly subdued.

APPENDIX IV

THE ADMONITORY LETTERS OF NANUK TO THE FABULOUS MONARCH KARON, AND THE PRESCRIPTIVE LETTERS OF GOVIND FOR THE GUIDANCE OF THE SIKHS

NOTE—Two letters to Karon are attributed to Nanuk. The first is styled the "Nusseeut Nameh," or Letter of Admonition and Advice. The second is styled simply the "Reply of Nanuk," and professes to be spoken. Karon may possibly be a corruption of Haruon, the 'Haruun el Rrschid' of European and Asiatic fame. Both compositions are of course fabulous as regards Nanuk, and appear to be the compositions of the commencement or middle of the last century

The two letters of Govind are termed the "Rehet Nameh" and the "Tunkha Nameh," or the Letter of Rules and the Letter of Fines respectively, and while

they are adapted for general guidance, they profess to have been drawn up in reply to questions put by individuals, or for the satisfaction of particular inquirers There is no evidence that they were composed by Govind himself, but they may be held to represent his views and the principles of Sikhism

I *The Nusseent Nameh of Nanuk or the Letter to Karon, the Mighty Prince, possessing forty Capital Cities replenished with Treasure* (Extracts from)

Alone man comes alone he goes.
When he departs naught will avail him (or bear him witness).
When the reckoning is taken what answer will he give?
If then only he repents, he shall be punished
* * * * *
* * * * *
Karon paid no devotions he kept not faith
The world exclaimed he ruled not justly
He was called a Ruler, but he governed not well
For the pleasures of the world ensnared him.
He plundered the earth hell fire shall torment him.
* * * * *
* * * * *
Man should do good so that he be not ashamed.
Repent—and oppress not,
Otherwise hell fire shall seize thee, even in the grave.
* * * * *
Holy men, Prophets Shahs and Khans
The mark of not one remaineth in the world
For man is but as the passing shade of the flying bird

* * * * *

Thou rejoicest in thy Forty Treasures,
But thou hast not kept faith.
See, oh people! Karon utterly confounded.
O Nanuk! pray unto God, and seek God as thy refuge.

2. *The Reply of Nanuk to Karon, the Lord of Medina.*

First, Nanuk went to Mecca;
Medina he afterwards visited.
The lord of Mecca and Medina,
Karon, he made his disciple.
When Nanuk was about to depart,
Karon, the fortunate, thus spoke.
Now thou art about to go,
But when wilt thou return?
Then the Gooroo thus answered·
When I put on my tenth dress
I shall be called Govind Singh;
Then shall all Singhs wear their hair,
They shall accept the "Pahul" of the two-edged dagger
Then shall the sect of the Khalsa be established,
Then shall men exclaim, "Victory, O Gooroo!"
The four races shall become one and the same,
The five weapons shall be worn by all.
In the Kulyoog they shall array themselves in vestments of blue;
The name of the Khalsa shall be everywhere.
In the time of Aurungzeb
The wondrous Khalsa shall arise
Then shall battles be waged,
Endless war shall ensue,
And fighting shall follow year after year.

They shall place the name of Govind Singh in their hearts
Many heads shall be rendered up
And the empire of the Khalsa shall prevail
First, the Punjab shall become the land of the Sikhs,
Then other countries shall be theirs,
Hindostan and the North shall be possessed by them,
Then the West shall bow to them.
When they enter Khorassan
Caubul and Candahar shall lie low
When Iran * has been laid prostrate,
Mecca shall be beheld
And Medina shall be seized
Mighty shall be the rejoicing
And all shall exclaim "Hail, Gooroo!"
Unbelievers shall everywhere be destroyed
The holy Khalsa shall be exalted
Beasts and birds, and creeping things, shall tremble (in the presence of the Lord).
Men and women shall everywhere call on God
The earth the ocean and the heavens shall call on God
By calling on the Gooroo shall men be blessed
Every faith shall become of the Khalsa
No other religion will remain.
"Wah Gooroo" shall everywhere be repeated
And Pain and Trouble shall depart.
In the Kulyoog shall the Kingdom be established
Which Nanuk received from the Lord
Worthless I fall before God
Nanuk the slave, cannot comprehend the ways of the Lord.

* Persia

3 *The Rehete Nameh of Gooroo Govind.* (Extracts from, and abstracts of portions.)

Written for Durreeaee Oodassee, and repeated to Pruhlad Singh at Upchullunuggur (Nuderh on the Godavery)

The Gooroo being seated at Upchullunuggur, spake to Pruhld Singh, saying, that through the favor of Nanuk there was a sect or faith in the world for which rules (rehet) should be established.

A Sikh who puts a cap (topee)* on his head, shall die seven deaths of dropsy.

Whosoever wears a thread round his neck is on the way to damnation.

[It is forbidden to take off the turban (pug) while eating, to have intercourse with Meenas, Mussundees, and Kooreemars (children slayers,) and to play at chess with women

No prayers are to be offered up without using the name of the Gooroo, and he who heeds not the Gooroo and serves not the disciples faithfully, is a Mletcha indeed

A Sikh who does not acknowledge the Hookumnameh (requisition for benevolences or contributions) of the Gooroo, shall fall under displeasure].

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* Referring particularly to Hindoo ascetics, but perhaps, also to the Mahometans, who formerly wore skull-caps alone, and now genarally wind their turbans round a covering of the kind The Sikh contempt for either kind of "topee" has been thrown into the shade by their repugnance, in common with all other Indians, to the English cap or hat.

during the next six hours. Pressure increased at the centre at the rate of about ·115″ per hour. The storm at 8 A.M. was of moderate intensity, and it is very probable that the calm central area had filled up. The storm continued to fill up during the day and was of little importance at 4 P.M., although a small residual depression continued to drift towards the north-east during the next 18 hours.

The causes of this rapid break-up of the storm during the night of the 5th and morning of the 6th can only be surmised. There was no large or general change in the meteorological conditions of India outside the storm area which would account for it. The pressure changes outside the area affected by the storm were small and somewhat irregular, and the winds in the south of the Bay, as indicated by the data for Colombo, Camorta and Port Blair, show no large change either of direction or force. The causes must hence be sought in the storm area itself and in the relation of the storm to the conditions of the area over which it was passing.

The storm recurved very rapidly on the 5th, and was, on the evening of the 5th, moving across the Head of the Bay in an east-north-east direction. The humid winds of indraught hence began to be subject to the obstructive action of the Arakan and Chittagong Hills on the evening of the 5th, and this obstructive action increased during the night with the continued approach of the storm area towards these hills. There was moderately heavy rain in the Arakan hill districts and light to moderate rain in the Chittagong Hill districts —facts which to some extent support the supposition.

As the cyclone was a storm of comparatively low elevation, the resistance offered by the land to the winds of indraught in the lowest portion of the storm may have had some influence, but this does not appear to be sufficient for the unusually rapid filling up of the storm, whilst the centre was crossing the north-west angle of the Bay and before it reached the coast of the Sunderbuns.

The immediate cause appears to have been the rapid diminution in the rainfall over the storm area during this period. This may have been due to the fact that the aqueous vapour supplies in the Bay was almost exhausted by the enormous drain on them during the previous four days. This supposition cannot be tested. The following assigns another and apparently adequate cause. It has been pointed out that the outer storm area received a considerable extension on the 4th, and hence that the southerly humid winds of indraught entered the storm area at a greater distance from the central area on the 4th

and 5th than on the previous days. When the storm recurved to east-north-east on the 5th, these humid winds not only entered and affected the storm area at much greater distances than hitherto from the centre, but were directed more and more largely towards the Arakan and Chittagong Hills This tended to diminish the rainfall immediately in front of the cyclone This proceeded in an accelerating rate with the continued advance of the storm across Central Bengal towards Silchar The breaking up of the storm would hence appear to be due to the combinations of actions resulting from the extension of the storm area on the 4th and 5th, the recurvature of the storm and its advance across Central and East Bengal in a direction nearly at right angles to the Arakan and Chittagong Hills and perhaps to the exhaustion of the humid currents This storm in its more important features—more especially its intensity, extent and recurvature—resembled the Backergunj cyclone of October 1876 That storm crossed the coast at the mouth of the Megna, and was completely broken up within six hours of crossing the coast The present storm, which crossed the coast 150 miles further to the west but advanced to the same districts of Assam, was upwards of 24 hours in breaking up These facts apparently point to the existence of similar disintegrating actions of feebler intensity in the case of the present storm

Chief features of the air movement in the cyclone

The preceding discussion has established that in this, as in many cyclonic storms in the Bay of Bengal, the rainfall, although it occurred more or less vigorously over the whole storm area, was most excessive in front Hence the seat of the most active condensation and therefore of the most rapid ascensional motion, was in the advancing quadrant, at some distance in front of the calm central area This inference from the distribution of the rainfall, it may be stated is confirmed by the cloud movements as observed in these storms and by the [illegible] the winds or horizontal air movement a[illegible] distances from the centre in differen[illegible] storms, more especially when they are approaching the north west or north coast of the Bay, there are very marked differences between the air movement in the different quadrants

The strongest winds in the cyclonic storms of the Bay are invariably the intensified humid winds of indraught from the south or south-west These winds usually enter the storm area in the south-eastern or eastern quadrant and are subject to an increasing horizontal acceleration and to an increasing upward movement in their course round and towards the centre In the case of the storms with

a calm central area, these humid winds do not pass into the calm centre and rise up as in a funnel, but are carried round and up, and thence pass out of the storm circulation. Hence it follows that the strongest winds (or most violent horizontal motion) should be observed at some angular distance round, and that the *most rapid ascensional* will occur still further round. In the remaining quadrants the indraught will be partly due to descending masses of air and partly to local indraught from areas to the west or north. The descending masses of air, more especially when the storms are approaching the north-west coast of the Bay, give rise to similar actions to those which occur in nor' westers in the months of April and May in Bengal, as, for example, violent electric action, and very heavy squalls of wind and rain. These differences in the character of the air movement in different quadrants form one of the more important objections to the assumption that the motion of the air in a cyclone may be considered as compounded of a rotatory motion and of a movement of translation. The most important feature of the movement is the entrance of a humid current into the storm area in one quadrant and its rapid upward movement and passage (in part at least) out of the storm area in another quadrant, *i.e.*, the advancing quadrant. An examination of all the more recent storms in the Bay of Bengal indicates that amidst considerable diversity in certain features they all agree in the important features described in the preceding paragraphs. The Port Blair cyclone appears to have been a typical example in respect to these essential features. For example, when crossing the South Andaman Island, the humid southerly winds entered the storm area in the eastern quadrant, and the strongest winds were experienced in the northern quadrant. A reference to the Chart Plate XVI (based on an accurate survey of the destruction due to the cyclone) will shew at once that the belt of destructive winds to the north of the track of the storm was much wider than that to the south. Ascensional movement was at that stage most active in the western quadrant as appears to be the usual, if not the invariable, rule in the case of storms crossing the Bay in a westward direction in the October transition period.

The preceding remarks have established that aqueous vapour condensation, rainfall, and hence ascensional motion, were most vigorous in the advancing quadrant at some *distance in front of the* calm central area. Assuming these features as conditions of the advancing quadrant, the following consequences would appear to follow from theoretical considerations:—

1st.—The increased uptake in the advancing quadrant would give rise to a local decrease of pressure due to that updraught,

and hence pressure would be lowest, not in the calm central area, but at some distance in front determined by the special conditions of the storm.

2nd.—This local decrease of pressure due to the upward movement would apparently affect the gradients. The steepest gradients in consequence of this action would be shewn in the advancing quadrant at some distance in front of the centre (and also of the area of greatest uptake in front of the centre).

3rd.—As a further consequence of this displacement of the seat of lowest pressure from the calm central area to a position in the advancing quadrant at some distance in front, the isobars should assume an oval form, the largest diameter being approximately in the direction of the greatest ascensional movement in the storm area and of the advance of the storm centre.

The valuable series of observations taken at the False Point Light-house during the storm, were fully in accordance with these theoretical conclusions; as they shew that—

1st.—the lowest barometer was observed at 3-45 P.M. when the calm centre area was about 2 miles to the south-west and approaching it;

2nd.—the steepest gradients were recorded between 2 P.M. and 3 P.M., or at some distance in front of the calm central area and the position of lowest barometer;

3rd.—the isobars of the storm area proper were oval curves, the largest diameter lying approximately in the direction of the track of the centre at that time.

It may be noted that the calm centre was upwards of 40 minutes in passing over the False Point Light-house, thus affording ample opportunity for recording the chief features exactly and carefully and hence these observations are entitled to special weight.

The history of the present storm shews that it had a well-defined calm central area during at least five days of its existence, *viz.*, from the early morning of the 1st to the morning of the 6th, and that it was, so far as can be inferred from the observations taken at two periods or stages of the storm, *i.e.*, at Port Blair and at False Point, of almost constant magnitude during the greater part, if not the whole, of that period of five days. The mass of air in this calm central area was, unlike that of the rest of the storm area, practically, if not absolutely, at rest. The False Point observations establish that pressure was about a tenth of an inch lower just in front of this calm area

Character of motion or [illegible] of the calm central area

than it was immediately in the rear. These facts would appear to suggest that the mass of air in the calm central area *might* be considered as a solid unchanging mass pushed forward by the excess of pressure in the rear. But further consideration will shew that this explanation cannot be accepted.

If the mass of air in the central calm area had been pressed forward as a solid column, its rate of advance would be that already given as the velocity of the centre, which varied between 20 and 10 miles as it marched from Port Blair to False Point. But a mass of air moving with a horizontal velocity of 20 miles (equivalent to 3·5 Beaufort scale, or a moderate breeze) or even 10 miles (equivalent to 1·5 Beaufort scale, or a light breeze) over a station must have been felt as a strongish wind. The average velocity of the air at False Point in November is 6·6 miles per hour and at Port Blair 6·9 miles per hour. The accounts of the passage of the calm central area shew that the air motion in it was not merely small compared with that of the previous hurricane winds, but that it was practically, if not absolutely, *nil*. It was, as described by the Light-housekeeper, a "dead calm followed after some time by light variable winds." It is hence certain that the apparent onward movement of the calm central area was not due to the forward translation of the contained mass of air. The False Point observations indicate that it was really due to the air immediately in front being brought to rest and as it were absorbed into the calm central area—whilst the action of the strong winds in the rear was to drag the air out of the neighbouring portion of the calm central area and put it into motion. Hence, as observed at False Point, the winds in front decreased rather rapidly, but by no means instantaneously, to moderate, thence to light winds, and in the rear the change occurred in the reverse manner. The calm central area is hence almost certainly transferred onwards in cyclones after the manner of a wave, by constant addition in front, and by diminution behind. The addition to the calm central area in front is evidently an effect of the rapid ascensional motion in front which experience has shown to be most vigorous in those tropical cyclones that have well-developed calm central areas.

If the inferences and reasoning in the preceding remarks be correct, it would also follow as a further consequence that the various actions determining the advance of the calm central area in the manner described would also tend to make the area of most active ascensional movement in the advancing quadrant move forwards in the same general direction. Its direction of advance would be determined by several causes some of which are stated in a later paragraph.

Hence in the words of Cleveland Abbe in his "Deductive Studies" "the position at any instant of the lowest barometer" (and it may be added of the calm central area in tropical cyclones in the Bay of Bengal) "is connected with the present portion of the region of the greatest updraft by a formula that represents a lagging behind, as in the problem of the dog chasing the fox, one is pursuing the other but never attaining."

Conditions determining track of storm

Storms of the south-west monsoon originating in the Bay of Bengal, as a rule, travel along paths approximately coinciding with the position of the trough of minimum pressure at the time of their formation.

During the months of June, July, and August the trough of low pressure, as a rule, runs in a west-north-west direction from Orissa to Upper Sind or the South-West Punjab It separates the area in which the Bombay branch of the monsoon current prevails from another in which the Bay current usually predominates. Westerly winds obtain in the former and easterly winds in the latter. The trough is a product of the circulation, and its position depends upon the relative strength of the two currents at the time. It is, as a rule, very distinctly marked in the months of June, July, and August.

When the rains cease or the monsoon humid current withdraws from North-Western India, the trough of low pressure is transferred south-eastward and fills up partially, and is a much less prominent feature of the meteorology of India in October and November than in the preceding months. It, however, continues to play a very important part in determining the line of march of cyclonic storms The trough in the Bay in these months separates an area of westerly winds in the south of the Bay from an area in the north-west and north in which light to moderate easterly to north-easterly winds obtain. Its position is determined by the relative strength of these two air currents, and varies very considerably in the corresponding months of different years. Its normal position in November is the centre of the Bay between the Andamans and Nicobars on one side and the Coromandel Coast on the other.

Cyclonic storms during the months of October and November frequently originate in the central or eastern portion of this trough and advance along it usually with a slight additional northing, i.e. they tend to advance in west-by-north direction when the trough lies east and west across the Bay. When a storm forms in it, the humid south-west winds enter in the eastern quadrant, and the greatest ascensional movement usually occurs in the opposite quadrant and

the storm centre advances towards this quadrant, and hence in general westerly direction.

During the first-half of the advance of the Port Blair cyclone, *i.e.*, from the 31st to the 2nd, it followed the normal track of cyclonic storms in the Bay in November, but during the latter half, from the 3rd to 6th, it recurved to an abnormal extent.

Causes determining the recurvature *of the storm.*

The preceding discussion has established that the meteorology of October was marked by several abnormal features, which were not only very persistent but were more strongly exhibited during the last week of the month than before. The most important of these abnormal features was excessive pressure in the Deccan as contrasted with the eastern half of the Bay of Bengal and with the Bombay or west coast districts. With these abnormal pressure features was associated a preponderance of dry northerly winds in the north-west coast districts of the Bay instead of the normal north-east winds of the season. These abnormal winds accompanied a failure of the October and November rains in the Deccan. South Madras received frequent rain during the month of October, thus showing that the humid monsoon current was of at least moderate strength, although considerably deflected and diverted from its normal extension. The rainfall in that area decreased rapidly in amount on the 26th, and a considerable rise of pressure and an extension of the area of local excessive pressure from the Deccan to South Madras hence occurred on the 29th and 30th. A reference to the second Charts of Plates IV and V will shew clearly the characteristic features of the pressure at this period.

The chief effect of these changes of pressure was to extend the trough of low pressure eastwards into the Gulf of Siam, and to cause it to run in a westerly direction with a slight northing across the centre of the Bay to the neighbourhood of the West Coast, where it was apparently blocked by the high pressure area in the Deccan.

The storm formed in the eastern extremity of the trough of low pressure and advanced along a track a little more northerly than the normal track in November across the Andaman Sea and the centre of the Bay of Bengal.

The recurvature was apparently due to the combination of the following causes:—

1st.—The obstructive action of the East Ghâts.

2nd.—The barrier of local excess of pressure in the Deccan.

3rd.—The undue prevalence of land-winds in the north-west of the Bay and the neighbouring coast districts.

The first cause is not a sufficient explanation, as the centre began to recurve when it was at a distance of at least 300 miles from the coast, and hence before the West Ghâts could have exerted any obstructive or deflecting influence on the storm.

The second and third causes are essentially one. The excess pressure in the Deccan was in part a cause and in part a product of the abnormal dry northerly winds in the Deccan and neighbouring part of the Bay of Bengal. The amount of the excess was relatively very small and apparently inadequate to act as an obstruction or barrier to a cyclonic storm of the magnitude and intensity of the Port Blair cyclone.

I have pointed out in a previous cyclone report that recurvature occurs when changes occur in the volume, and strength of the humid currents maintaining the cyclonic circulation Thus storms of the rains passing across the head of the Peninsula, when they are maintained by the Bay current only, usually, if not invariably, recurve to north. In other words, the area of greatest uptake and most vigorous condensation takes place after a smaller amount of rotation or indraught than before. In such cases the volume of the humid winds of indraught decreases as it passes over the land area, and there is an increasing influence of dry land-winds. It is very probable that the latter exercise a considerable influence in diminishing the activity of condensation, and hence of the cyclone. The comparison of the storms referred to above with those of temperate regions where condensation is less vigorous than in tropical cyclones, confirms, the inference stated above that the increasing introduction of dry land-winds into the cyclone area tends to cause the most active condensation to occur earlier in the rotatory movement, and hence the centre to recurve to the right.

If the preceding argument be correct, the centre of the Port Blair cyclone began to recurve on the evening of the 2nd, because the winds of indraught to the westerly quadrant were much drier than usual. The recurvature was small at first, but on the 3rd, when the storm came more under the obstructive and deflecting influence of the East Ghâts, the recurvature increased rapidly.

The preceding statement has given the chief causes operative in determining the peculiar track of the Port Blair cyclone. They were—

1st.—The peculiar position of the trough of low pressure in the Bay at the time of formation of the storm.

2nd.—The effect of the undue prevalence of [illegible] and [illegible] northerly winds than usual in the north-west of the Bay

(one indication of which was the excessive pressure in the Deccan) in causing a slow bend of the path of the centre to the right when approaching the coast of the Circars.

3rd.—The deflecting action of the East Ghâts on storms that advance obliquely towards them.

Origin of third storm.

The third storm was of moderate extent but of great intensity. It had a central calm area and an inner storm area of hurricane winds.

Unlike the Port Blair cyclone, it originated in the Bay, under what may be termed the ordinary conditions of cyclone generation in November. Southern India had a short burst of rain after the breaking up of the previous cyclone. Rain practically ceased on the 11th or 12th. Westerly winds continued in the south of the Bay, whilst north or north-east winds continued over the north-west and north. The trough of low pressure stretched across the centre of the Bay, and its form and position changed to some extent during the next few days. Weather became squally with much rain in the centre of the trough or slight depression. South-west winds in the south of the Bay increased in strength. These conditions continued from the 12th to the 17th or 18th without any indication of the initiation of a cyclonic storm. Favourable conditions apparently obtained during the whole of this period, but it was not until the 19th that the concentration commenced, which initiated and started the cyclonic whirl in the central portion of the shallow depression where previously squally and heavy weather with variable and unsteady winds had prevailed. The available information does not enable the cause of the change to be ascertained. It was undoubtedly connected with increasing rain in the area of disturbance and the advance and increasing strength of southerly humid winds in the south-east of the Bay. The concentration may have been due to a localization of the rainfall in the area where the storm formed, or to the heavy rain squalls occurring over the area in such a manner as to give rise to the rapid accumulation of action and energy necessary to the rapid development of a large cyclonic whirl.

Rapid development of the storm.

The marine data prove that there was no regular cyclonic circulation in the centre of the Bay on the morning of the 18th. The first indications of the establishment of a cyclonic circulation were shewn on the morning of the 19th. It developed with great rapidity. experience of the ship *Mobile Bay* establishes that winds increased to hurricane force in the storm area on the afternoon of the 20th, and that there was a calm central area on the 21st. It hence almost

certainly developed from the initial stage of irregular squally weather with no centre of action to an intense cyclonic storm with a calm centre in less than 48 hours

The history of the storm also shews that the extent of the storm (as measured by the area in which cyclonic winds force 8 and upwards prevailed) also increased rapidly Thus on the 20th, winds of force 8 were almost certainly not felt at distances of 100 miles from the centre, on the 21st, winds of force 8 were experienced at distances varying from 150 to 250 miles, and on the 22nd at distances of at least 300 miles in the eastern quadrant The data shew clearly that the storm increased in intensity and in extent, and that it commenced as a small central action in a large shallow depression area covering the centre of the Bay

Increase of extent of the storm area.

The following gives data of the position and rate of advance of the centre of the storm —

Track of the storm.

	Latitude	Longitude	Distance travelled in the preceding 24 hours	Rate of motion in miles per hour
20th 8 A.M.	11° 45	8[illegible]° 30		
21st 8 [illegible]	1[illegible]° 45	8[illegible]° 3[illegible]	64	4
22nd 8 [illegible]	14° 0	8[illegible]° 45	118	5
[illegible] midnight	15° 30	91° 15	143	9
23rd 8 A.M.	16° 30	93° 0	143	17

The rate of advance of the storm hence increased steadily and rapidly from its formation on the 20th Its rate when approaching the Arakan Coast, was very probably at least 20 miles per hour It may be noted that as a rule, storms generated in the centre of the Bay increase in velocity as they advance and that the increase of velocity is most marked in those storms which march northwards to the Head of the Bay or north-eastwards to Arakan

A reference to the charts of the 19th and 20th will shew that in consequence of the change of pressure between the cessation of rain in Southern India on the 12th and the formation of the storm on the 19th and 20th the trough of low pressure on these days formed a shallow depression over the centre of the Bay the greatest diameter of which ran north-east and south-west The path of the storm centre coincided [illegible] with the axis or greatest diameter of this depression [illegible] in the charts of the [illegible] and hence [illegible]

Track of storm determined by the position of the axis of the trough of low pressure at the time.

Recurvature of the centre when approaching the Arakan Coast.

The storm recurved slightly to east on the 22nd and 23rd when it was approaching the Arakan Coast. In this case the recurvature was apparently due to the Arakan Hills diminishing to some extent the volume of the influx of humid winds, and the effect of this, as already explained, would be to cause it to recurve to the right of its previous direction of advance. A reference to the storm tracks given in the "Handbook of cyclonic storms in the Bay of Bengal" will shew that the two storms during the period 1882—87, which advanced from the centre of the Bay to the Arakan Coast, both recurved to east.

The path of the storm directed it almost directly to the Arakan Hills in the Sandoway district. The height of these hills ranges from 1,500 to 3,000 feet. It is interesting to contrast their action on the storm with that of the East Ghâts on the Port Blair cyclone. The Arakan Hills did not deflect the storm at all. As the storm was approaching them they acted more and more powerfully in breaking up the regular indraught of the humid winds in the eastern quadrant, and hence the storm was practically disintegrated by these hills. There passed over a shallow residual depression, which gave disturbed rainy weather and irregular winds for a short period of about 24 hours and then disappeared.

In the preceding discussion I have given a statement of all the more important features of the three cyclonic storms in the Indian seas during the month of November 1891, and have attempted to indicate the probable relations between the chief phenomena of the storms and also shown how far they were probably dependent upon antecedent meteorological conditions.

Summary of preceding discussion.

It has been pointed out that some of the more important features of the air movement in the largest of these storms, *viz.*, the Port Blair cyclone, cannot be explained on the ordinary assumption that the horizontal motion of the air can be considered as the resultant of a gyratory or rotatory velocity, and of a velocity of translation. The motion is much more complex. There was, for example, no perceptible movement of the mass of air in the calm central area, and it was propagated in exactly the same way as a wave in water is transmitted.

The occurrence of secondary or subsidiary whirls, and of a succession of violent squalls also indicate the presence of important irregular or intermittent actions during the storm at variance with the regular resolution of the air motion into two component parts. The air motion in different quadrants also differs largely in intensity and other features. Many of these peculiarities are at once explicable

by the distribution and mode of occurrence of the rainfall in the storm area

The data of the Port Blair cyclone suggest that in the most severe cyclones in the Bay vapour condensation and rainfall are most vigorous in the advancing quadrant Pressure is sometimes if not invariably, lowest at some little distance in front of the calm centre This was shown fully by the observations taken at False Point during that cyclone

The calm central area is transmitted forward by actions similar to those in a wave, and hence the transition from the hurricane winds of the inner storm area to the calm area is gradual, and not instantaneous Mr Willson in the report on the Midnapur cyclone of 1874 gives a striking example of this He says "Of the passage of the storm over the town of Burdwan I have seen various accounts, all of which differed more or less in the time given for the commencement of the gale and of its duration It appears that before the gale the wind gradually decreased in violence until it was almost calm The calm continued for about three quarters of an hour, and after that the wind gradually again increased until it reached nearly, if not quite, the same violence as before " These peculiarities of the air motion are important, as they indicate features not usually recognized and which are very probably essential conditions in cyclonic air motion in the Bay of Bengal and probably in the Tropics generally

The three storms were all generated under similar circumstances They were all disturbances in the humid south west monsoon current They all originated in sea areas under the influence of that current They each formed during periods when the current was weak and had withdrawn temporarily from the land area of Southern India The areas in which they formed were the northern or eastern limits of that current and were for some days previous to the generation of the storms areas of light variable winds North-east winds prevailed in the sea areas to the north and west but these winds, as well as those of the south-west monsoon current, were light and feebler than the normal of the period It is hence almost certain that the origin of these storms was not due to any mechanical action between two opposite air currents The temperature conditions of the sea areas in which the storms originated so far as they are indicated by the available observations, were almost certainly [illegible] uniform and it is hence very probable that there [illegible] the [illegible] [illegible] areas [illegible]

the rainfall accompanying the storms and the more prominent features has been fully stated, and it is evident that rainfall or aqueous vapour condensation formed by far the most prominent factor in determining the origin and motion of the three storms.

Variations in the strength and extension of the south-west monsoon current are normal features of its existence. These variations are most marked when the current is retreating. Cyclones in the months of October, November, and December originate in the intervals known as breaks in the retreating south-west monsoon rains in Southern India, and hence when the current is feeble. The usual antecedent conditions are uniform pressure and temperature conditions in the Bay, the prevalence of light and variable winds over a large portion of the Bay and of feeble to moderate unsteady south-west winds in the south of the Bay. *Fine clear weather usually obtains, and hence* evaporation under a tropical sun proceeds rapidly. Frequently, after these conditions have continued for some little time, weather becomes showery and slightly disturbed in a portion of the area; usually that in which winds are lightest and most unsteady and variable. The rainfall increases in amount and becomes more localized and concentrated, and the weather becomes squally. If the conditions favour the continued concentration of the rainfall, the disturbance passes beyond the diffused irregular stage of squally weather and a regular cyclonic circulation is rapidly established. The whole of the changes are such as may occur in consequence of the ordinary dynamical changes constantly in progress in the atmosphere. The potent factor in the Bay is aqueous vapour condensation, and any conditions that favour the peculiar distribution of rainfall essential for the initiation or development of the area may be determining conditions. It is not necessary to repeat them as they have been sufficiently indicated in the preceding discussion. Cleveland Abbe in his "Preparatory studies for deductive methods in storm and weather predictions" has explained very fully the origin of storms under similar conditions in the United States (pages 144—8). The following extract gives a very clear and interesting account of the earlier stages of the formation and development of this class of cyclonic storms in the United States :—

"By the velocities and directions of the clouds and winds we shall know that such a new controlling central indraught has been formed. There is first a diminution of wind velocities in certain directions, and then such reversions or such other modifications of these directions as make them conform to a general circulation about the central region. This new arrangement of winds and cloud movements becomes apparent first in the cloud, and is slowly propagated down to the earth's surface until this new circulation is well established among the lower winds,

and until then we observe no great fall in the barometer. The uprising of air, or the fall of rain, or the straight line indraught can, as has been frequently shown, have no appreciable, or rather only a very evanescent, barometric influence. The buoyancy can initiate and maintain movements to which the [illegible] responds so quickly that a gradient of 0·01 of an inch of pressure for a degree of a great circle will suffice to explain our heaviest winds; but when a movement has once begun in response to such slight gradient there comes into play a centrifugal action and a force depending on the rotation of the earth, deflecting the currents to the right and leaving a decided depression at the place of central indraught. No sooner has the wind begun to rotate or circulate about this centre than there arises still another centrifugal force due to the rotation about this storm centre, by virtue of which the barometric pressure is still further reduced, thus giving rise to barometric phenomena as we ordinarily observe them. In this way our so-called storm centre, when once started, is fed and grows, and if the condensation of vapour or the sunshine, or the excessive rainfall, or the descent of dry air on one side of the storm, one or all conspire to tend to develop a buoyancy in the atmosphere on one side of the centre greater than on the other side then the storm will be propagated in that direction."

The conditions determining the line of march, the unusually large recurvature, and rapid disintegration of the Port Blair cyclone have been fully discussed. The formation of the storm in the eastern portion of the retreating south-west monsoon trough of low pressure, its westward march along this trough (with the usual tendency to deviate slightly to the right), and the large deflection of the storm in part due to the abnormal pressure in the peninsula and in part to the obstructive action of the West Ghâts, have been explained in the preceding paragraphs and the dominating influence of rainfall on each of these features set forth.

Cleveland Abbe in page 130 of his "Preparatory Studies" gives the following actions or causes as determining the motion of cyclones in the United States:—

(1) The unbalanced northward pressure attending a "low" as deduced by Ferrel.

(2) The drift of the general current of atmosphere that carries the air and the storm along together.

(3) The insolation that stimulates uprising currents on the sunny side.

(4) The orography that promotes cloud growth and rain on the windward side of mountains and coasts.

(5) Oceans that promote evaporation.

(6) The geographical distribution of the areas of high pressure.

(7) The precipitation of rain that leaves heat free in the cloud.

the rainfall accompanying the storms and the more prominent features has been fully stated, and it is evident that rainfall or aqueous vapour condensation formed by far the most prominent factor in determining the origin and motion of the three storms.

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"By the velocities and directions of the clouds and winds we shall know that such a new controlling central indraught has been formed. There is first a diminution of wind velocities in certain directions, and then such reversions or such other modifications of these directions as make them conform to a general circulation about the central region. This new arrangement of winds and cloud movements becomes apparent first in the cloud, and is slowly propagated down to the earth's surface until this new circulation is well established among the lower winds,

and until then we observe no great fall in the barometer The uprising of air, or the fall of rain, or the straight line indraught can, as has been frequently shown have no appreciable, or rather only a very evanescent barometric influence The buoyancy can initiate and maintain movements to which the limpid air responds so quickly that a gradient of 0 01 of an inch of pressure for a degree of a great circle will suffice to explain our heaviest winds, but when a movement has once begun in response to such slight gradient there comes into play a centrifugal action and a force depending on the rotation of the earth, deflecting the currents to the right and leaving a decided depression at the place of central indraught No sooner has the wind begun to rotate or circulate about this centre than there arises still another centrifugal force due to the rotation about this storm centre, by virtue of which the barometric pressure is still further reduced thus giving rise to barometric phenomena as we ordinarily observe them In this way our so called storm centre, when once started, is fed and grows and if the condensation of vapour or the sunshine, or the excessive rainfall, or the descent of dry air on one side of the storm one or all conspire to tend to develop a buoyancy in the atmosphere on one side of the centre greater than on the other side then the storm will be propagated in that direction "

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(5) Oceans that promote evaporation

(6) The geographical distribution of the areas of high pressure

(7) The precipitation of rain that leaves heat free in the cloud

He also adds, "Of all these, the last (7) when it occurs becomes at once the leading factor in determining the progress of the whole disturbance."

In the case of the storm under discussion, the motion was in no way determined by the drift of the atmosphere. The third and fourth causes exercised some slight influence. The fifth was probably influential in contributing to the origin as well as the march of the storms. The sixth in the case of Indian cyclones is of much importance and should perhaps be stated in the case of these cyclones as follows:—

Cyclones in the Indian area have a strongly marked tendency to advance along troughs of low pressure and towards low-pressure areas, and hence their tracks are largely determined by the geographical distribution of the areas of high and low pressure at the time of their formation and occurrence.

The history of all large cyclones in India shows that rainfall becomes the dominating factor in the earlier, if not the earliest stages of the storm and that it continues to be the leading factor throughout the whole existence of these storms.

APPENDIX A.

The following gives the whole of the actual observations as recorded at the False Point Light House Observatory and the Port Office Hookeytollah, during the storm —

Actual observations as recorded at the Light House, False Point, during the storm of the 4th, 5th and 6th November 1891

Date	Hour	Barometer	Attached thermometer	Hygrometer		Wind direction	Cloud amount	Lower clouds		Rainfall since preceding observation of rain	Weather remarks
				Dry Bulb	Wet Bulb			Kind	Moving from		
5th Nov 1891	8 30 A M	29 716	79			E	10	Pk	E		Blowing a gale w th heavy ra n, weather very threatening
	9 A M	714	79			E	10	Pk	E S E		Severe puffs, clouds and scud drifting fast
	9 30 A M	706	79			E S E	10	Pk	E S E		Wind increasing, blowing a hard gale
	10 A M	680	79	79 0	76 8	E S E	10	Pk	S E		Weather cond tions unaltered
	0-30 A M	646	79			S E	10	Pk	S E		Seve e gale with bl nding ra n
	11 A M	632	79	79 0	76 8	E S E	10	Pk	S E		Terrific squalls with heavy rain
	11 30 A M	556	79			E S E	0	Pk	S E		Hard gale with bl nding rain
	Noon	Read ngs omitted being engaged in chang ng anemometer									
	1 30 P M	436	79								W nd increas ng 68 m les hourly velocity by the new anemometer Heavy clouds travelling at an enormous rate
	1 P M	370	79			E S E	10	Pk	S E		Wind blowing with hurr cane force rain bl nd ng
	1 30 P M	276	78			New a e mometer blown away	10	Pk	S E		Weather cond tions the same.
	*2 P M	150	78	76 2	76 0	S E	10	Pk	S E	1 60	Continuat on of severe weather, barometer commenced pulsat ing
	2 30 P M	28 778	78			S E	0	Pk	S E		Wind heavy an l most terrific with bl nding rain
	3 P M	476	77			S F	10	Pk	S Γ		Weatl er cond t ons unchanged
	3 30 P M	300	77			E S E	10	Pk	F S E		Wind st ll fierce, barometer pul sating about tenth of an inch
	3 45 P M	134	78								Clouds not so dense, centre ap parently near Tl e barometer stood for a short t me and tl en commenced to rise, pulsating violently
	4 P M	204	78	77 0	77 0	E S E	10	Pk	E S E		Wind blowing a moderate gale, rain decreasing, breaks in clouds
	4 5 P M										The win l ceased and then a dead calm followed by light variable winds which lasted till 4 45 P M
	4 15 P M	242	78			S E	10	Pk			Light winds Broken clouds; heavy banks to eastward

* After the 2 P M observations were taken, the thermometers were removed to the Light House verandah for safety

Actual observations as recorded at the Light House, False Point, during the storm of the 4th, 5th and 6th November 1891—concld.

Date.	Hour.	Barometer.	Attached thermometer.	Hygrometer. Dry Bulb.	Hygrometer. Wet Bulb.	Wind direction.	Cloud amount.	Lower clouds. Kind.	Lower clouds. Moving from	Rainfall since preceding observation of rain.	Weather remarks.
5th Nov. 1891.	4-30 P.M.	·286	78	...	...	N. W.	10	Pk.	...	...	Weather appearances about the same.
	5 P.M.	·300	79	77·0	77·0	N. W.	10	Pk.	...	2·16	Blowing a hurricane with blinding rain.
	5-30 P.M.	·606	77	...	...	N. W.	10	Pk.	...	...	The force of the wind at this time was terrific.
	6 P.M.	·916	78	...	...	N. W.	10	Pk.	...	...	Weather conditions about the same.
	7 P.M.	29·198	78	...	...	N. W.	...	...	...	...	Wind moderating a little, continuous heavy rain.
	8 P.M.	·522	78	...	...	N. W.	10	Pk.	...	1·42	Wind gradually moderating and rain decreasing still blowing a hard gale.
	9 P.M.	·660	78	...	...	N. W.	...	...	...	...	Moderate gale; light rain.
	10 P.M.	·772	78	..	...	N. W.	10	Pk.	N. W.	...	Strong wind; rain nearly ceased, clouds less dense.
	11 P.M.	·840	78	74·0	72·0	N. W.	10	Pk.	N. W.	0·50	Weather continuing about the same.
	Midnight	·852	77	...	...	N. W.	10	Fk.	N. W.	...	Wind decreasing in force, drizzling rain.
6th Nov. 1891.	2 A.M.	·842	77	74·0	72·0	N. W.	10	Fk.	N. W.	0·15	Dark gloomy weather with fresh winds, rain ceased; clouds breaking.
	5 A.M.	·844	77	74·1	74·0	...	8	Fk.	N. W.	...	Weather looking gloomy, but clearing up; moderate breeze.

APPENDIX B.

Actual observations as recorded at the Port Office (Hookeytollah) False Point, during the storm of the 4th, 5th and 6th November 1891.

Day and date.	Hours	Barometer (aneroid)	Thermometer	Wind	State of the weather
Wednesday 4th Nov 1891	6 A M	29 72	84	N E	Blowing a hard gale with heavy squalls of wind and rain, wind veering between north east and east
	8 A M	29 75	82	,,	Ditto weather
	10 A M	29 76	82	,,	Ditto ditto with heavier rain
	11 A M	29 74	83	,,	Ditto ditto ditto
	Noon	29 70	83	,,	Still blowing a hard gale, but squalls not so frequent or so fierce
	1 P M.	29·67	84	,,	Blowing a hard gale with a heavy overcast sky and ugly looking weather with a very heavy sea in the Bay
	2 P M	29 63	83	,,	Ditto weather, with very heavy squalls and showers of rain
	3 P M	29 63	82	,,	Ditto ditto
	4 P.M	29 63	82	,,	Ditto ditto
	5 P M	29 63	82	,,	Ditto ditto with very fierce squalls
	6 P M	29 64	82	,,	Ditto ditto
	7 P M	29 64	81	,,	Ditto ditto with heavy rain
	8 P M.	29 66	82	,,	Ditto ditto squalls more fierce and frequent
	9 P M	29 67	83	,,	Ditto ditto
	10 P M	29 67	83	,,	Ditto ditto with lightning to the south east
	11 P M	29 65	83	,,	Ditto ditto ditto
	Midnight	29 63	83	,,	Ditto ditto ditto
Thursday 5th Nov. 1891.	1 A M	29 60	83	,,	Blowing a hard gale, with very fierce squalls, blinding sheets of rain flashes of lightning to the south west and distant thunder and a dull leaden overcast sky
	2 A M	29·60	83	,,	Ditto weather with wind veering between north east and east
	3 A M	29 59	83	,,	Ditto ditto
	4 A M	29 59	83	,,	Ditto ditto
	5 A M.	29 58	83	,,	Ditto ditto, 5 30 A M. wind suddenly lulled and became almost a calm for nearly half an hour but at 6 A M wind squalls commenced afresh with blinding sheets of rain
	6 A M	29 56	83	,,	Ditto weather, with wind veering between north east and east
	7 A M	29 56	83	,,	Ditto weather
	8 A M	29 56	83	,,	Ditto
	9 A M	29 56	83	,,	Ditto
	9-15 A M	29 56	84	East.	A most terrific squall from the east with blinding sheets of rain
	9-30 A M	29 55	84	East	Ditto weather
	9 45 A M	29 55	84	,,	Ditto
	10 A M	29 53	84	,,	Ditto
	10-15 A M	29 51	84		Ditto
	10-30 A M	29 50	84	E S E	Wind increased to a hurricane with very severe squalls of wind and rain
	10-45 A M	29 50	81	E S E	Ditto weather
	11 A M	29 50	84	,,	Ditto
	11 15 A M	29 50	84	,,	Ditto
	11 30 A M	29 49	84	,,	Ditto
	11 45 A M	29 46	84	,,	D
	Noon	29 44	84	,,	
	0-15 P M	29 44	84	,,	

Actual observations as recorded at the Port Office (Hookeytollah) False Point, during the storm of the 4th, 5th and 6th November 1891—concluded.

Day and date.	Hours.	Barometer (aneroid).	Thermometer.	Wind.	State of the weather.
Thursday 5th November 1891—*contd.*	0-30 P.M.	29·38	84	E.-S.-E.	Wind increased to a hurricane with very severe squalls of wind and weather.
	0-45 P.M.	29·35	84	,,	Ditto.
	1 P.M.	29·31	83	,,	Ditto.
	1-15 P.M.	29·29	83	,,	Ditto.
	1-30 P.M.	29·26	83	,,	Ditto.
	1-45 P.M.	29·23	83	,,	Blowing a violent hurricane with most terrific squalls and blinding sheets of rain.
	2 P.M.	29·17	83	,,	Ditto weather.
	2-15 P.M.	29·10	82	,,	Ditto.
	2-30 P.M.	29·05	82	,,	Ditto.
	2-45 P.M.	28·95	82	,,	Ditto.
	3 P.M.	28·85	83	,,	Ditto.
	3-15 P.M.	28·74	84	,,	Ditto.
	3-30 P.M.	28·65	84	E. S. E.	Blowing a most violent hurricane with most terrific squalls and blinding sheets of rain.
	3-45 P.M.	28·55	82	,,	Ditto weather.
	4 P.M.	28·37	82	,,	Ditto 4-12 P.M., wind suddenly lulled and blew in heavy gusts, the centre of the storm evidently passing close to the eastward of us.
	4-15 P.M.	28·22	82	,,	Moderate breeze with heavy rain and a very heavy overcast sky and thick hazy weather.
	4-20 P.M.	28·20	82	N. E.	Ditto weather.
	4-30 P.M.	28·20	82	,,	Ditto.
	4-40 P.M.	28·15	82	,,	Ditto.
	4-50 P.M.	28·15	82	,,	Ditto.
	5 P.M.	28·15	82	North.	Ditto.
	5-10 P.M.	28·17	82	,,	Strong breeze with heavy gusts and Ditto weather.
	5-20 P.M.	28·22	82	,,	Ditto weather.
	5-30 P.M.	28·26	82	,,	Wind increased to a hard gale with heavy squalls and blinding sheets of rain.
	5-40 P.M.	28·35	82	N. W.	B wing a violent hurricane with most terrific squalls and blinding sheets of rain.
	5-50 P.M.	28·40	82	,,	Hurricane blowing with redoubled force Ditto weather.
	6 P.M.	28·53	82	,,	Ditto weather.
	6-10 P.M.	28·65	82	,,	Hurricane blowing with redoubled force, most terrific squalls and blinding sheets of rain.
	6-20 P.M.	28·73	82	,,	Ditto.
	6-30 P.M.	28·77	82	W.	Ditto.
	6-40 P.M.	28·86	82	,,	Ditto.
	6-50 P.M.	28·91	82	,,	Ditto.
	7 P.M.	28·96	82	,,	Wind moderating slightly, but still blowing with hurricane force, squalls not quite so terrific.
	7-10 P.M.	29·00	82	,,	Ditto.
	7-20 P.M.	29·03	82	,,	Ditto.
	7-30 P.M.	29·10	82	W. S. W.	Ditto.
	7-40 P.M.	29·15	82	,,	Ditto.
	7-50 P.M.	29·18	82	,,	Ditto.
	8 P.M.	29·20	82	,,	Ditto.
	8-15 P.M.	29·25	82	W. S. W.	Windlmod erated to a hard gale with heavy squals of wind and rain.
	8-30 P.M.	29·34	82	,,	Ditto weather.
	8-45 P.M.	29·36	82	,,	Ditto.
	9 P.M.	29·40	82	,,	Ditto.
	9-30 P.M.	29·47	82	,,	Ditto.
	10 P.M.	29·53	82	S. W.	Wind moderated to a moderate gale with occasional squalls of wind and rain and a heavy overcast sky.
	Midnight.	29·63	82	S. W.	Strong breeze, cloudy and fine weather.
Friday 6th Nov. 1891.	4 A.M.	29·65	82	N. W.	Light winds, cloudy and fine.
	8 A.M.	29·77	79	North.	Light weather, with heavy banks of clouds to the east and south-east.

Government of India Central Printing Office.—No. 37 Meteo.—3-6-93.—400.

CHART I—MEAN DAILY DISTRIBUTION OF PRESSURE OF THE MONTH OF OCTOBER

CHART II—MEAN 8 A M DISTRIBUTION OF PRESSURE IN THE MONTH OF OCTOBER



Actual observations as recorded at the Port Office (Hookeytollah) False Point, during the storm of the 4th, 5th and 6th November 1891—concluded.

Day and date.	Hours.	Barometer (aneroid).	Thermometer.	Wind.	State of the weather.
Thursday 5th November 1891 —*contd.*	0-30 P.M.	29·38	84	E.-S.-E.	Wind increased to a hurricane with very severe squalls of wind and weather.
	0-45 P.M.	29·35	84	,,	Ditto.
	1 P.M.	29·31	83	,,	Ditto.
	1-15 P.M.	29·29	83	,,	Ditto.
	1-30 P.M.	29·26	83	,,	Ditto.
	1-45 P.M.	29·23	83	,,	Blowing a violent hurricane with most terrific squalls and blinding sheets of rain.
	2 P.M.	29·17	83	,,	Ditto weather.
	2-15 P.M.	29·10	82	,,	Ditto.
	2-30 P.M.	29·05	82	,,	Ditto.
	2-45 P.M.	28·95	82	,,	Ditto.
	3 P.M.	28·85	83	,,	Ditto.
	3-15 P.M.	28·74	84	,,	Ditto.
	3-30 P.M.	28·65	84	E. S. E.	Blowing a most violent hurricane with most terrific squalls and blinding sheets of rain.
	3-45 P.M.	28·55	82	,,	Ditto weather.
	4 P.M.	28·37	82	,,	Ditto 4-12 P.M., wind suddenly lulled and blew in heavy gusts, the centre of the storm evidently passing close to the eastward of us.
	4-15 P. M.	28·22	82	,,	Moderate breeze with heavy rain and a very heavy overcast sky and thick hazy weather.
	4-20 P. M.	28·20	82	N. E.	Ditto weather.
	4-30 P. M.	28·20	82	,,	Ditto.
	4-40 P. M.	28·15	82	,,	Ditto.
	4-50 P. M.	28·15	82	,,	Ditto.
					Ditto.
	5 P. M.	28·15	82	North.	Strong breeze with heavy gusts and
	5-10 P. M.	28·17	82	,,	Ditto weather.
	5-20 P. M.	28·22	82	,,	Ditto weather.
	5-30 P. M.	28·26	82	,,	Wind increased to a hard gale with heavy squalls and blinding sheets of rain.
	5-40 P. M.	28·35	82	N. W.	B wing a violent hurricane with most terrific squalls and blinding sheets of rain.
	5-50 P. M.	28·40	82	,,	Hurricane blowing with redoubled force
					Ditto weather.
					Ditto weather.
	6 P. M.	28·53	82	,,	Hurricane blowing with redoubled force, most terrific squalls and blinding sheets of rain.
	6-10 P. M.	28·65	82	,,	Ditto.
	6-20 P. M.	28·73	82	,,	Ditto.
	6-30 P. M.	28·77	82	W.	Ditto.
	6-40 P. M.	28·86	82	,,	Ditto.
	6-50 P. M.	28·91	82	,,	Wind moderating slightly, but still blowing with hurricane force, squalls not quite so terrific.
	7 P. M.	28·96	82	,,	Ditto.
	7-10 P. M.	29·00	82	,,	Ditto.
	7-20 P. M.	29·03	82	,,	Ditto.
	7-30 P. M.	29·10	82	W.-S.W.	Ditto.
	7-40 P. M.	29·15	82	,,	Ditto.
	7-50 P. M.	29·18	82	,,	Ditto.
	8 P. M.	29·20	82	,,	Windlmod erated to a hard gale with heavy squals of wind and rain.
	8-15 P. M.	29·25	82	W. S. W.	Ditto weather.
	8-30 P. M.	29·34	82	,,	Ditto.
	8-45 P. M.	29·36	82	,,	Ditto.
	9 P. M.	29·40	82	,,	Ditto.
	9-30 P. M.	29·47	82	S. W.	Wind moderated to a moderate gale with occasional squalls of wind and rain and a heavy overcast sky.
	10 P. M.	29·53	82		
	Midnight.	29·63	82	S. W.	Strong breeze, cloudy and fine weather.
Friday 6th Nov. 1891.	4 A. M.	29·65	82	N. W.	Light winds, cloudy and fine.
	8 A. M.	29·77	79	North.	Light weather, with heavy banks of clouds to the east and south-east.

Government of India Central Printing Office.—No. 37 Meteo.—3-6-93.—400.

CHART I.—MEAN DAILY DISTRIBUTION OF PRESSURE OF THE MONTH OF OCTOBER.

CHART II.—MEAN 8 A.M. DISTRIBUTION OF PRESSURE IN THE MONTH OF OCTOBER.

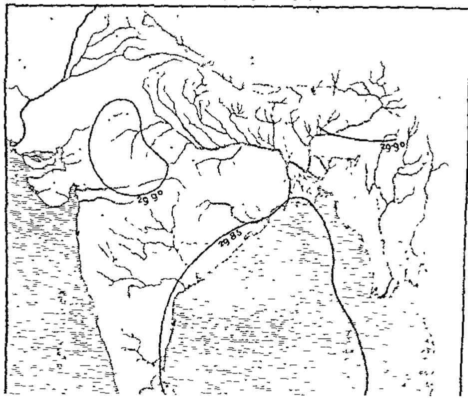


CHART I.—MEAN DAILY DISTRIBUTION OF PRESSURE IN OCTOBER 1891.

Bar high
29·90
29·85
29·85
Bar low
Bar low

CHART II.—MEAN 8 A.M DISTRIBUTION OF PRESSURE IN OCTOBER 1891.

29·90
29·95
29·90
29·90
29·90
29·90

CHART I—DISTRIBUTION OF THE "VARIATION" OF PRESSURE FROM THE NORMAL IN OCTOBER 1891

+40 +20 +20 +60 +60 +40 +20 +20 0

CHART II—DISTRIBUTION OF THE PRESSURE ANOMALIES OR LOCAL VARIATIONS OF PRESSURE IN OCTOBER 1891

0 0 0 0 0 +20 -20 -20 -40 -40

CHART I.—WEATHER CHART OF INDIA FOR 30th OCTOBER 1891, SHEWING PRESSURE DISTRIBUTION AND WINDS.



CHART II.—CHART SHEWING DISTRIBUTION OF PRESSURE ANOMALIES, 30th OCTOBER 1891.

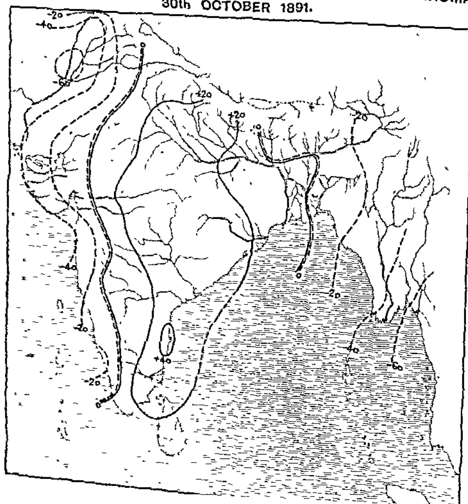


CHART I—WEATHER CHART OF INDIA FOR 31st OCTOBER 1891 SHEWING PRESSURE DISTRIBUTION AND WINDS

CHART II—CHART SHEWING DISTRIBUTION OF PRESSURE ANOMALIES, 31st OCTOBER 1891

Cyclone Memoirs, No V

WEATHER CHART OF INDIA AND ADJACENT SEAS

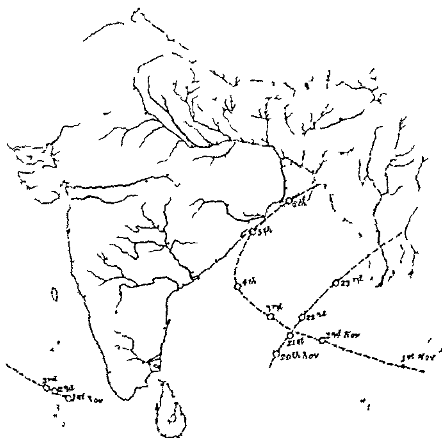
8 a m of 1st NOVEMBER 1891

8 a. m of 2nd NOVEMBER 1891

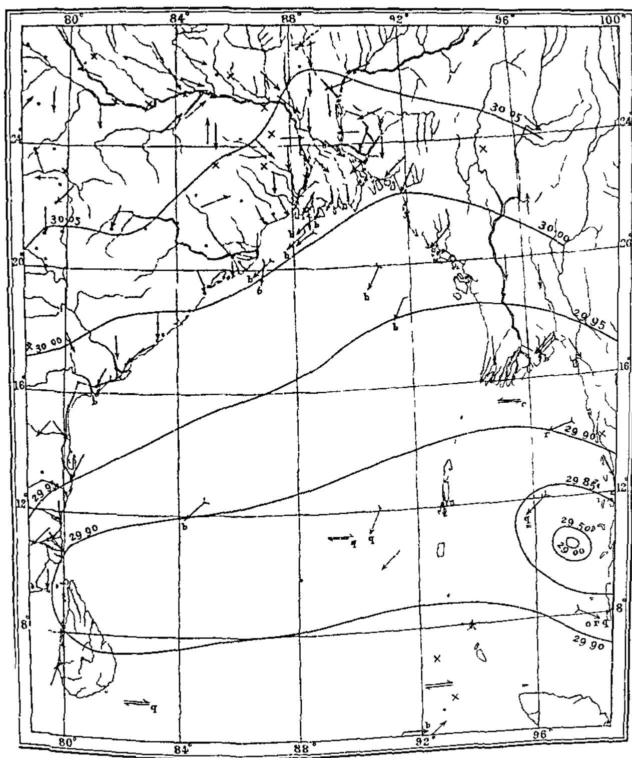
WEATHER CHART OF INDIA AND ADJACENT SEAS

8 a m of 3rd NOVEMBER 1891

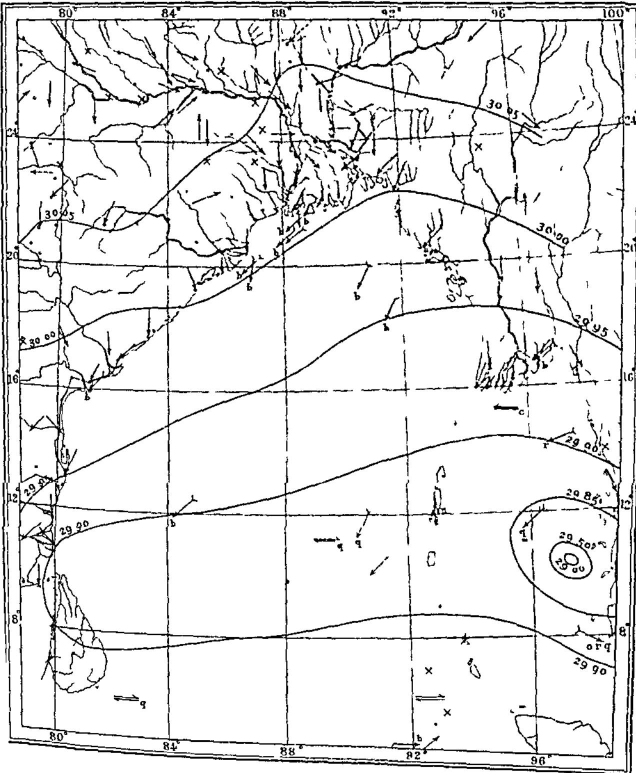
TRACKS OF CYCLONIC STORMS IN THE BAY OF BENGAL AND ARABIAN SEA NOV 1891



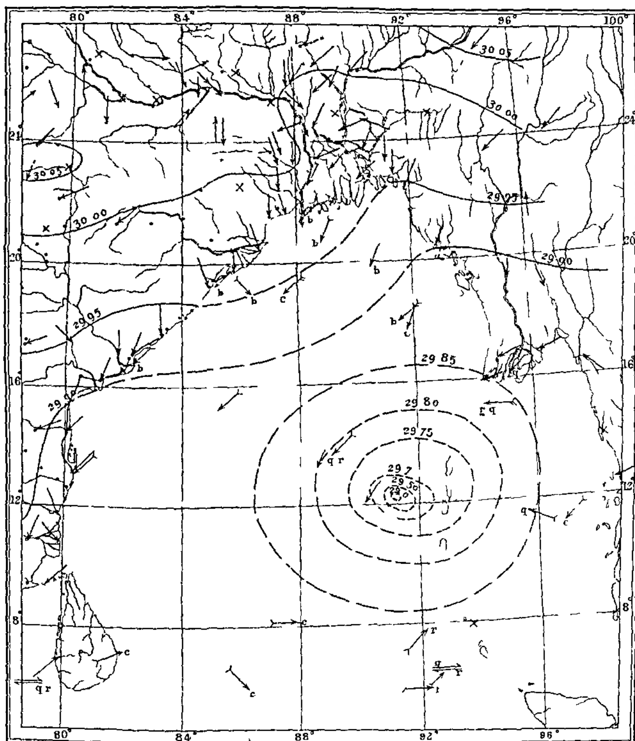
WEATHER CHART OF THE BAY OF BENGAL. 1st NOV. 1891.



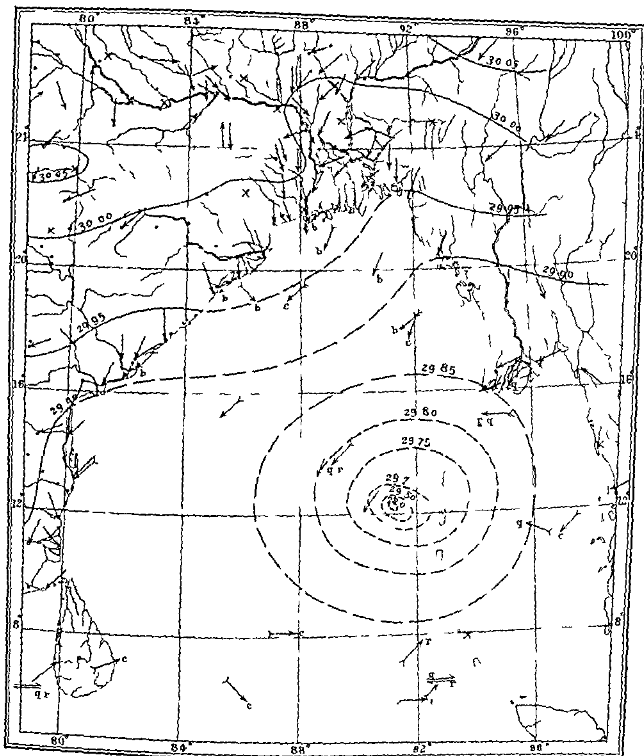
WEATHER CHART OF THE BAY OF BENGAL. 1st NOV. 1891.



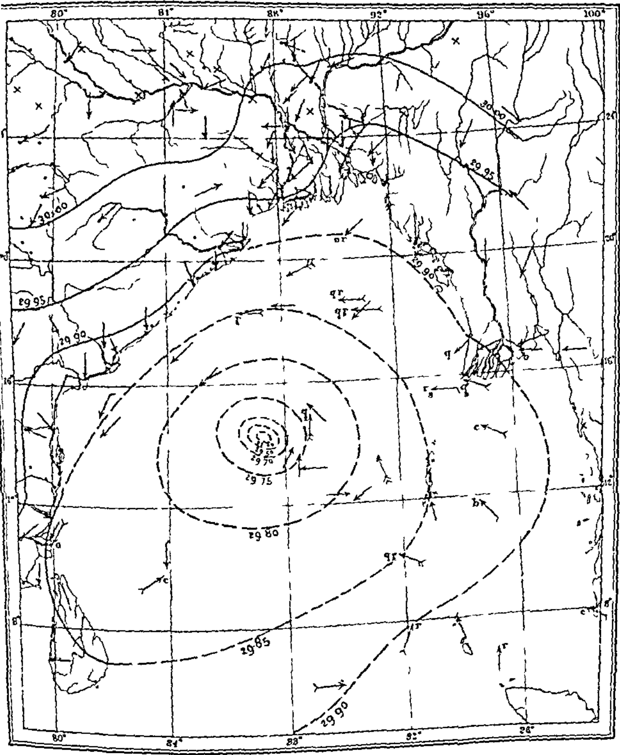
WEATHER CHART OF THE BAY OF BENGAL, 2nd NOV 1891.



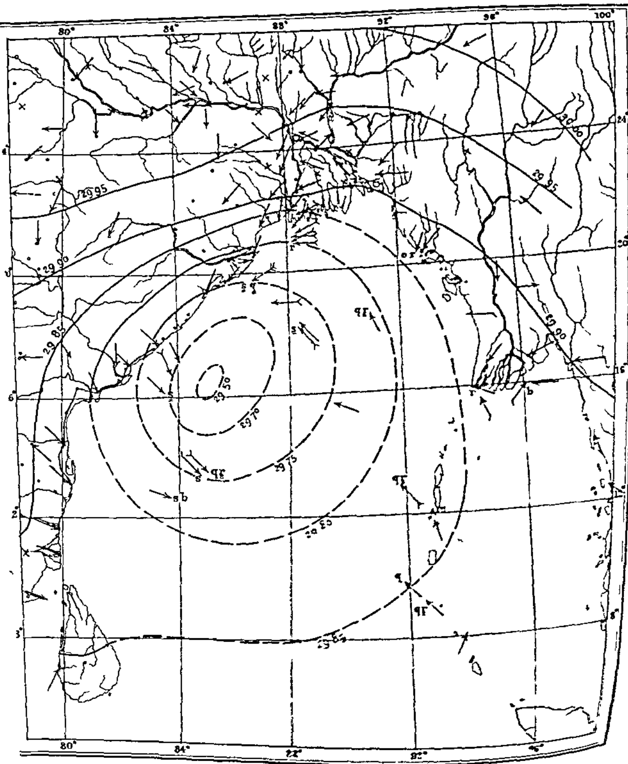
WEATHER CHART OF THE BAY OF BENGAL, 2nd NOV 1891.



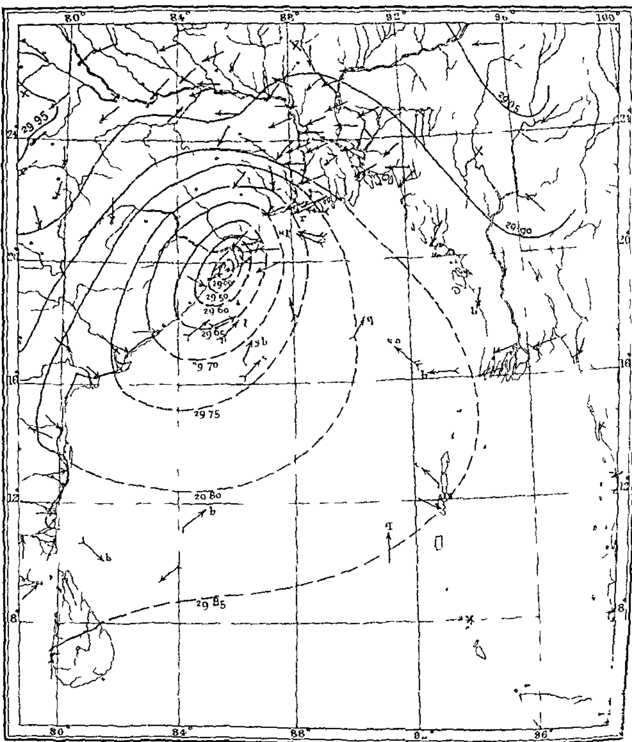
WEATHER CHART OF THE BAY OF BENGAL, 3rd NOV. 1891.



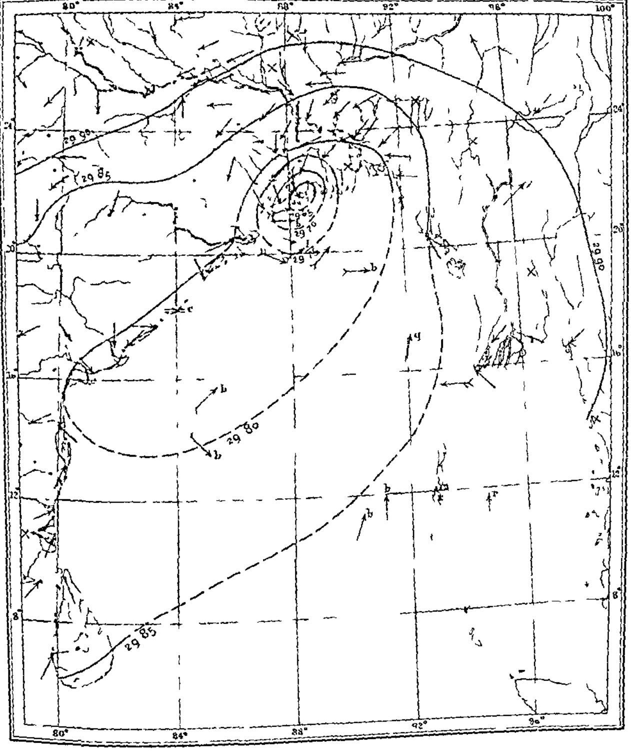
WEATHER CHART OF THE BAY OF BENGAL. 4th NOV. 1891.



WEATHER CHART OF THE BAY OF BENGAL, 5th NOV. 1891.



WEATHER CHART OF THE BAY OF BENGAL, 6th NOV. 1891.



MAP SHOWING PORTION OF THE MALAY PENINSULA CROSSED BY THE STROM OF 1st NOV. 1891.

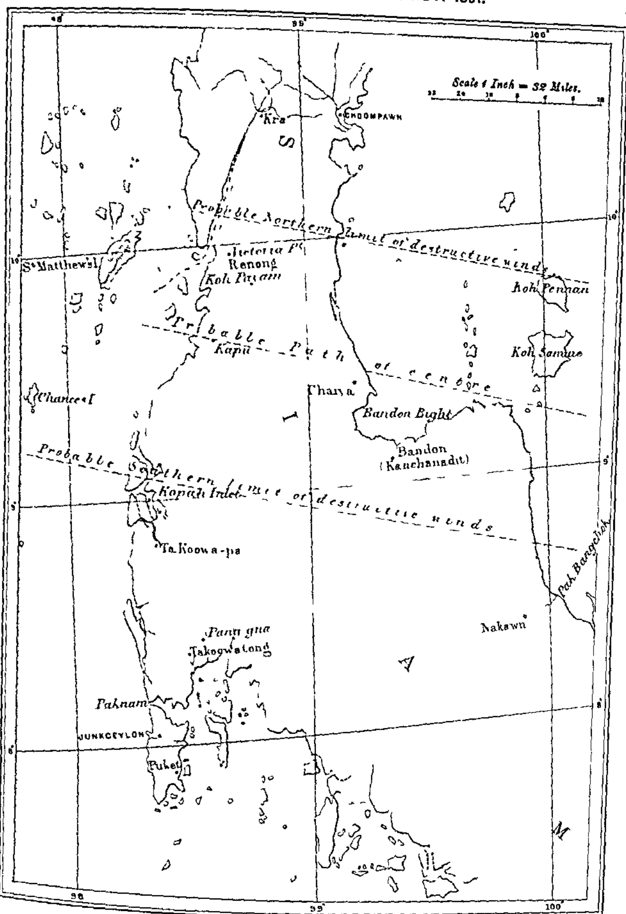


CHART OF SOUTH ANDAMAN ISLAND SHEWING TRACK OF THE STORM AND LIMITS OF DESTRUCTIVE WINDS, 2nd NOV 1891

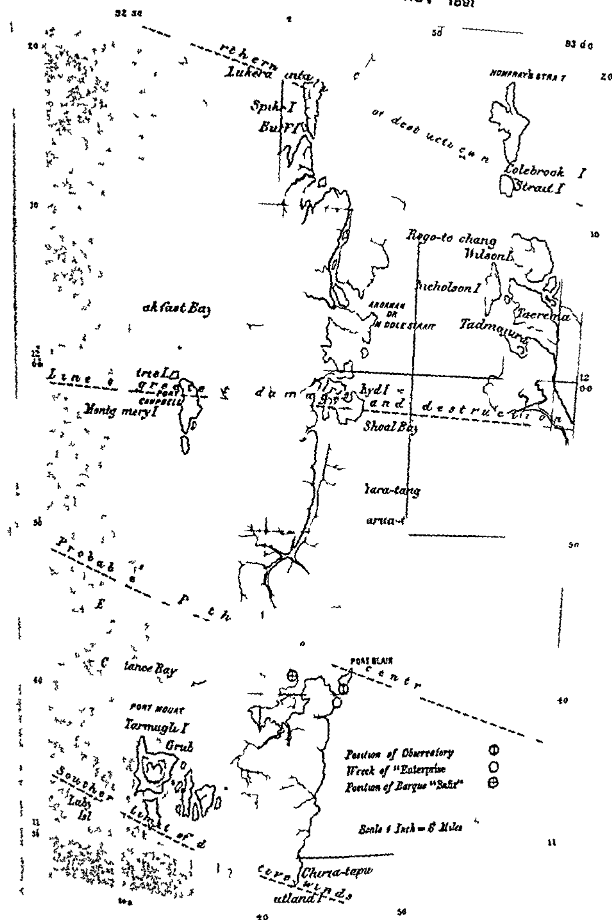


CHART SHOWING PRESSURE AS RECORDED AT PORT E
BOARD THE BARQUE "SAFIR" DURING THE ADVANC)FFICE,

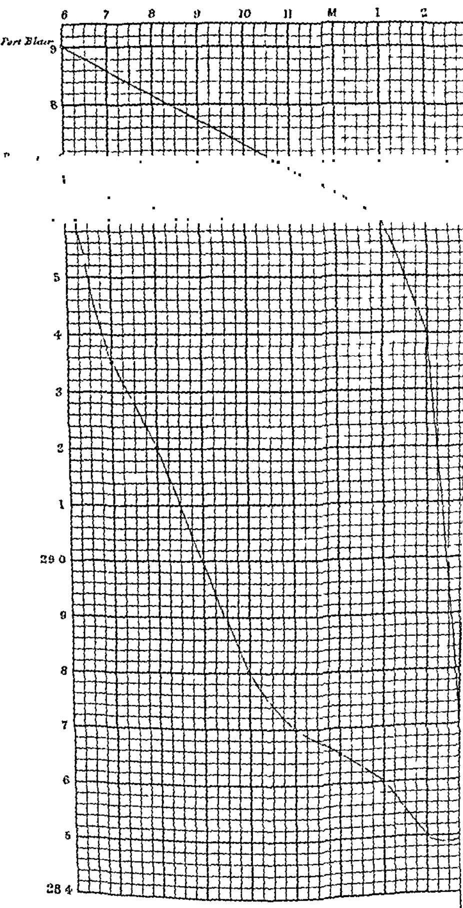


CHART SHOWING THE PRESSURE RECORDED AT THE LIGHT HOUSE AND PORT OFFICE, FALSE POINT, ON THE 5th NOV, 1891.

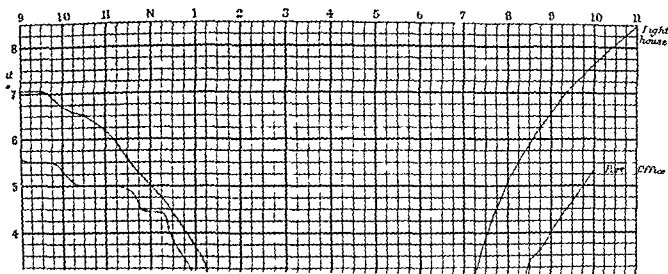


CHART OF SOUTH ANDAMAN ISLAND SHEWING TRACK OF THE STORM AND LIMITS OF DESTRUCTIVE WINDS, 2-3 NOV. 1891.

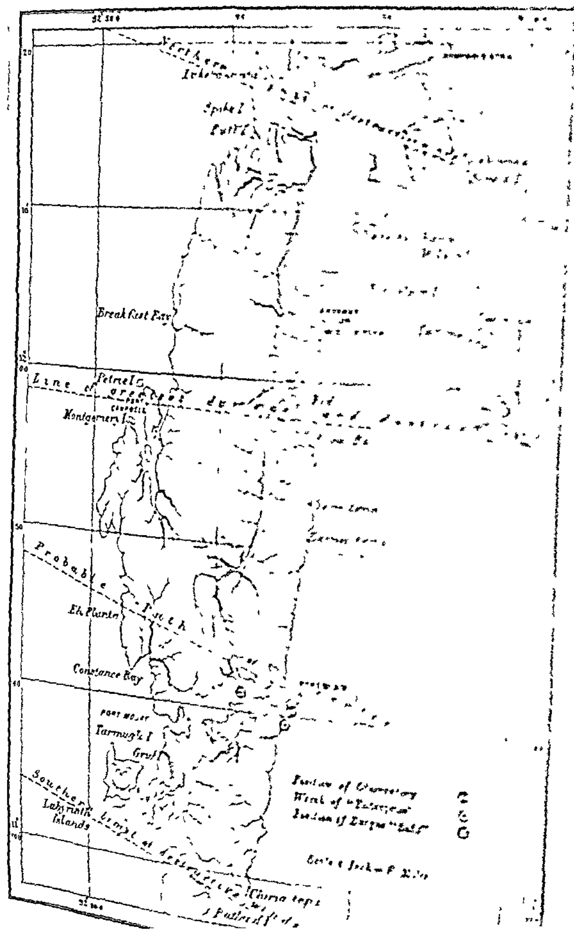
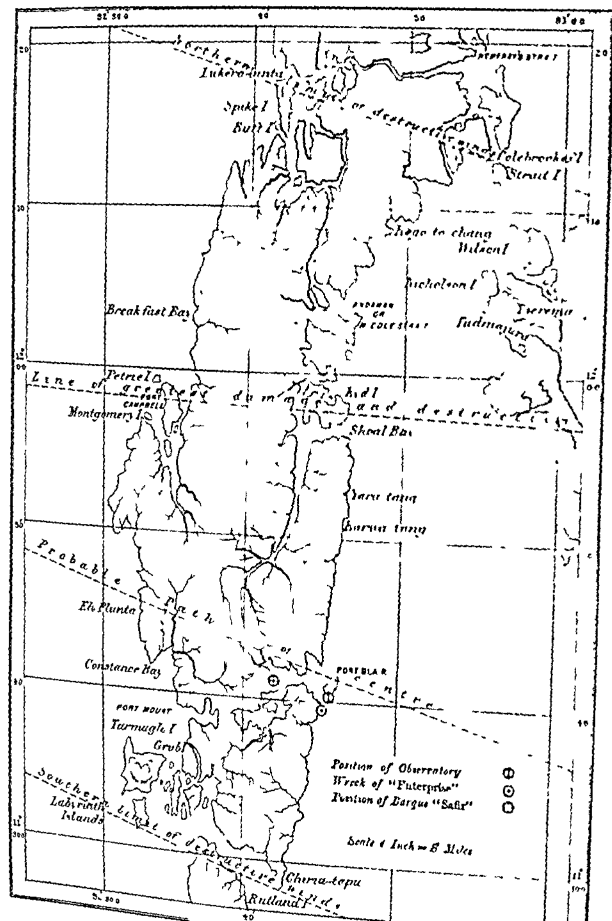
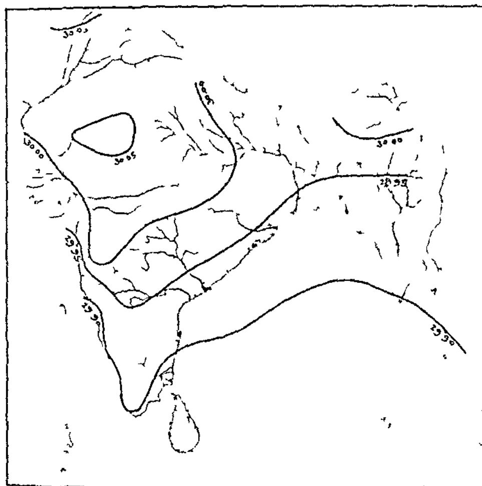


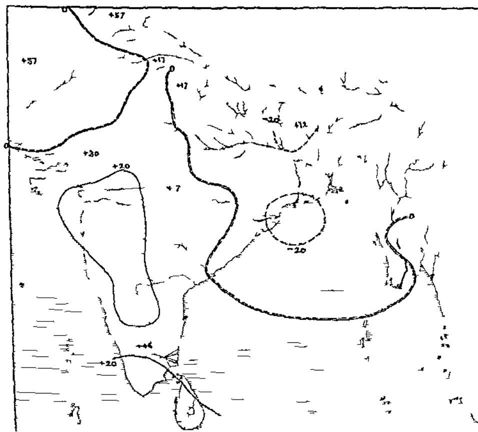
CHART OF SOUTH ANDAMAN ISLAND SHEWING TRACK OF THE STORM AND LIMITS OF DESTRUCTIVE WINDS, 2nd NOV, 1891.



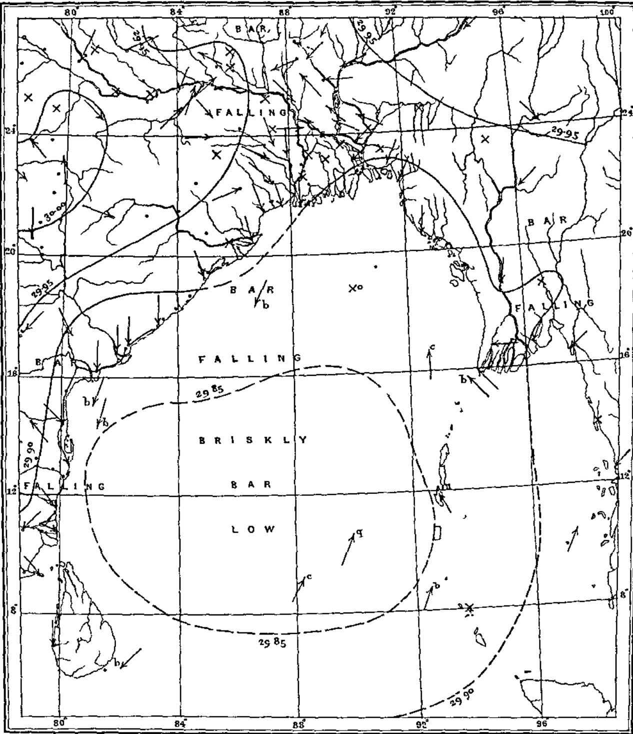
MEAN 8 a m DISTRIBUTION OF PRESSURE IN NOVEMBER 1891



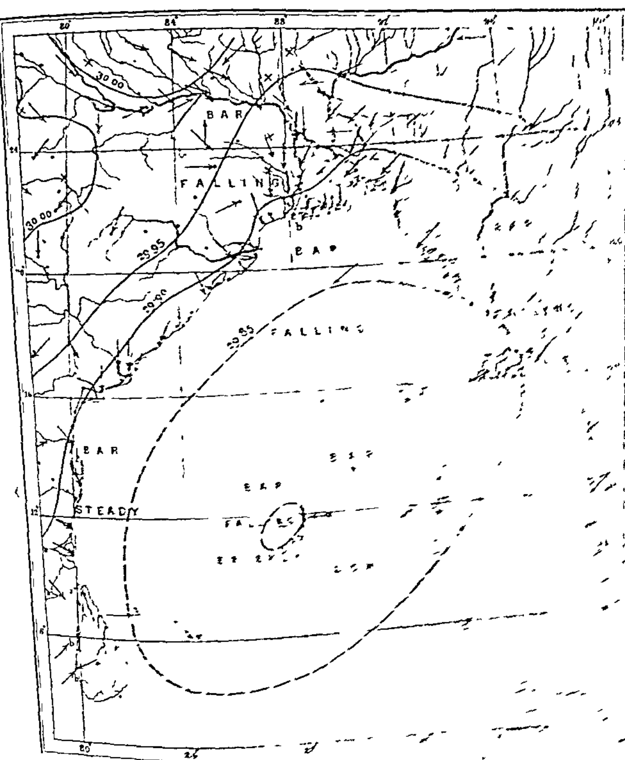
VARIATION OF MEAN 8 a. m PRESSURE FROM NORMAL IN NOV. 1891



WEATHER CHART OF THE BAY OF BENGAL, 19th NOV. 1891.



WEATHER CHART OF THE BAY OF BENGAL, 20th NOV. 1891.



WEATHER CHART OF THE BAY OF BENGAL, 21st NOV. 1891.

